

? logon

\*\*\* It is now 2009/08/27 11:58:21 \*\*\*  
(Dialog time 2009/08/27 10:58:21)

705TEXT1 is set ON as an alias for 15, 16, 160, 148, 621, 275, 634, 47  
705TEXT2 is set ON as an alias for 9, 623, 810, 624, 813, 20, 636  
705BIBLIT is set ON as an alias for 77, 35, 583, 2, 65, 233, 99  
705NEWSBIB is set ON as an alias for 473, 474, 475  
SOFTLIT is set ON as an alias for 256, 278  
705ADLIT is set ON as an alias for 635, 570, PAPERSMJ, PAPERSEU  
HILIGHT set on as ' ' ' '  
DETAIL set off  
KWIC is set to 50.

? b

**610,613,634,810,813,20,583,474,475,35,65,99,256,9,15,16,148,160,275,621,636,624,2,4  
76, 635, 570, PAPERSMJ, PAPERSEU, 47,347,348,349**

>>> 476 does not exist  
>>>1 of the specified files is not available  
27aug09 09:58:38 User264751 Session D638.1  
\$0.00 0.245 DialUnits File415  
\$0.00 Estimated cost File415  
\$0.06 INTERNET  
\$0.06 Estimated cost this search  
\$0.06 Estimated total session cost 0.245 DialUnits

SYSTEM:OS - DIALOG OneSearch

File 610:Business Wire 1999-2009/Aug 27  
(c) 2009 Business Wire.

\*File 610: File 610 now contains data from 3/99 forward.  
Archive data (1986-2/99) is available in File 810.

File 613:PR Newswire 1999-2009/Aug 27  
(c) 2009 PR Newswire Association Inc

\*File 613: File 613 now contains data from 5/99 forward.  
Archive data (1987-4/99) is available in File 813.

File 634:San Jose Mercury Jun 1985-2009/Aug 25  
(c) 2009 San Jose Mercury News

File 810:Business Wire 1986-1999/Feb 28  
(c) 1999 Business Wire

File 813:PR Newswire 1987-1999/Apr 30  
(c) 1999 PR Newswire Association Inc

File 20:Dialog Global Reporter 1997-2009/Aug 27  
(c) 2009 Dialog

File 583:Gale Group Globalbase(TM) 1986-2002/Dec 13  
(c) 2002 Gale/Cengage

\*File 583: This file is no longer updating as of 12-13-2002.

File 474:New York Times Abs 1969-2009/Aug 27  
(c) 2009 The New York Times

File 475:Wall Street Journal Abs 1973-2009/Aug 27  
(c) 2009 The New York Times

File 35:Dissertation Abs Online 1861-2009/Jul  
(c) 2009 ProQuest Info&Learning

File 65:Inside Conferences 1993-2009/Aug 27  
(c) 2009 BLDSC all rts. reserv.

File 99:Wilson Appl. Sci & Tech Abs 1983-2009/Jul

(c) 2009 The HW Wilson Co.  
File 256:TecTrends 1982-2009/Aug W4  
(c) 2009 Info.Sources Inc. All rights res.  
\*File 256: Please see HELP NEWS 256 for the latest information about TecTrends.  
File 9:Business & Industry(R) Jul/1994-2009/Aug 25  
(c) 2009 Gale/Cengage  
File 15:ABI/Inform(R) 1971-2009/Aug 26  
(c) 2009 ProQuest Info&Learning  
File 16:Gale Group PROMT(R) 1990-2009/Aug 04  
(c) 2009 Gale/Cengage  
\*File 16: UD/banner does not reflect last processed date  
File 148:Gale Group Trade & Industry DB 1976-2009/Aug 11  
(c) 2009 Gale/Cengage  
\*File 148: The CURRENT feature is not working in File 148. See HELP NEWS148.  
File 160:Gale Group PROMT(R) 1972-1989  
(c) 1999 The Gale Group  
File 275:Gale Group Computer DB(TM) 1983-2009/Jul 29  
(c) 2009 Gale/Cengage  
File 621:Gale Group New Prod.Annou.(R) 1985-2009/Jul 21  
(c) 2009 Gale/Cengage  
File 636:Gale Group Newsletter DB(TM) 1987-2009/Aug 04  
(c) 2009 Gale/Cengage  
File 624:McGraw-Hill Publications 1985-2009/Aug 27  
(c) 2009 McGraw-Hill Co. Inc  
File 2:INSPEC 1898-2009/Aug W3  
(c) 2009 The IET  
File 635:Business Dateline(R) 1985-2009/Aug 26  
(c) 2009 ProQuest Info&Learning  
File 570:Gale Group MARS(R) 1984-2009/Aug 04  
(c) 2009 Gale/Cengage  
File 387:The Denver Post 1994-2009/Aug 26  
(c) 2009 Denver Post  
File 471:New York Times Fulltext 1980-2009/Aug 26  
(c) 2009 The New York Times  
File 492:Arizona Repub/Phoenix Gaz 19862002/Jan 06  
(c) 2002 Phoenix Newspapers  
\*File 492: File 492 is closed (no longer updating). Use Newsroom, Files 989 and 990, for current records.  
File 494:St LouisPost-Dispatch 1988-2009/Jun 19  
(c) 2009 St Louis Post-Dispatch  
File 631:Boston Globe 1980-2009/Aug 27  
(c) 2009 Boston Globe  
File 633:Phil.Inquirer 1983-2009/Aug 27  
(c) 2009 Philadelphia Newspapers Inc  
File 638:Newsday/New York Newsday 1987-2009/Aug 27  
(c) 2009 Newsday Inc.  
File 640:San Francisco Chronicle 1988-2009/Aug 23  
(c) 2009 Chronicle Publ. Co.  
File 641:Rocky Mountain News Jun 1989-2009/Jan 16  
(c) 2009 Scripps Howard News  
\*File 641: This file has ceased updating  
File 702:Miami Herald 1983-2009/Aug 27  
(c) 2009 The Miami Herald Publishing Co.  
File 703:USA Today 1989-2009/Aug 26  
(c) 2009 USA Today

File 704:(Portland)The Oregonian 1989-2009/Aug 26  
(c) 2009 The Oregonian

File 713:Atlanta J/Const. 1989-2009/Mar 08  
(c) 2009 Atlanta Newspapers

File 714:(Baltimore) The Sun 1990-2009/Aug 23  
(c) 2009 Baltimore Sun

File 715:Christian Sci.Mon. 1989-2009/Jul 20  
(c) 2009 Christian Science Monitor

File 725:(Cleveland)Plain Dealer Aug 1991-2009/Aug 26  
(c) 2009 The Plain Dealer

File 735:St. Petersburg Times 1989- 2009/May 22  
(c) 2009 St. Petersburg Times

File 477:Irish Times 1999-2009/Aug 27  
(c) 2009 Irish Times

File 710:Times/Sun.Times(London) Jun 1988-2009/Aug 26  
(c) 2009 Times Newspapers

File 711:Independent(London) Sep 1988-2006/Dec 12  
(c) 2006 Newspaper Publ. PLC

\*File 711: This file does not update. See NewsRoom for full daily coverage from many European sources.

File 756:Daily/Sunday Telegraph 2000-2009/Aug 27  
(c) 2009 Telegraph Group

File 757:Mirror Publications/Independent Newspapers 2000-2009/Aug 27  
(c) 2009

File 47:Gale Group Magazine DB(TM) 1959-2009/Aug 14  
(c) 2009 Gale/Cengage

File 347:JAPIO Dec 1976-2009/Mar(Updated 090708)  
(c) 2009 JPO & JAPIO

File 348:EUROPEAN PATENTS 1978-200934  
(c) 2009 European Patent Office

File 349:PCT FULLTEXT 1979-2009/UB=20090820|UT=20090709  
(c) 2009 WIPO/Thomson

Set	Items	Description
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? s pd<20040309

[illegible]

[illegible]



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Processing
Processing
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Processing
Processing
Processing
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Processing
Processing
Processing
Processing
Processing
Processing
Processing
Processing
Processing
Processing
Processing
Processed   10 of    51 files ...
Processing
Processing
Processing
Processing
Processing
Processing
Processing
Processed   20 of    51 files ...
Processing
Processing
Processing
Processed   30 of    51 files ...
Processing
Processed   40 of    51 files ...
Processing
Processing
Processed   50 of    51 files ...
Processing
Completed processing all files
      126495513    $1
```

```

9426727 ONLINE
159 ON-LINE
3868461 DISTANCE
12796843 INTERNET
19026455 WEB
39567892 BASED
1297849 WEB(W)BASED
2471429 TRAIN
8109341 TRAINING
1995923 TRAINED
820187 TRAINS
8685916 EDUCATION
5173566 EDUCATIONAL
4681297 LEARN
3574230 LEARNING
209738 LEARNS
2799124 LEARNED
717203 (((ONLINE OR ON-LINE) OR DISTANCE) OR INTERNET) OR
WEB(W)BASED) (5N) (((((((TRAIN OR TRAINING) OR
TRAINED)
OR TRAINS) OR EDUCATION) OR EDUCATIONAL) OR LEARN) OR
LEARNING) OR LEARNS) OR LEARNED)
S2 427760 S1 AND ((ONLINE OR "ON-LINE" OR DISTANCE OR INTERNET
OR
(WEB(W)BASED)) (5N) (TRAIN OR TRAINING OR TRAINED OR
TRAINS
OR EDUCATION OR EDUCATIONAL OR LEARN OR LEARNING OR
LEARNS OR LEARNED))

```

**? s s2 and (content or courseware or coursewares or course or courses or tutorial or tutorials or material or materials)**

```

Processing
Processing
Processing
Processing
Processing
Processing
Processing
Processing
Processing
Processing
Processing 10 of 51 files ...
Processing
Processing 20 of 51 files ...
Processing
Processing 40 of 51 files ...
Processing
Processing 50 of 51 files ...
Completed processing all files
427760 S2
7503399 CONTENT
52628 COURSEWARE
170 COURSEWARES

```

9694285 COURSE  
 1467319 COURSES  
 142211 TUTORIAL  
 89081 TUTORIALS  
 10198707 MATERIAL  
 9185649 MATERIALS  
 S3 238294 S2 AND (CONTENT OR COURSEWARE OR COURSEWARES OR  
 COURSE OR  
 COURSES OR TUTORIAL OR TUTORIALS OR MATERIAL OR  
 MATERIALS)

>>> Retrying request [1]

**? s s3 and ((update or updated or updates or updating or updatable or refresh or  
 refreshes or refreshed or refreshing or revise or revises or revising or  
 revised)(5n)(content or course or courses or courseware or material or materials or  
 courses or lecture or lectures or tutorial or tutorials))**

Processing

Processing

Processing

Processing

Processing

Processing

Processing

Processing

Processing

Processing

Processing

Processing

Processing

Processed 10 of 51 files ...

Processing

Processed 20 of 51 files ...

Processing

Processed 30 of 51 files ...

Processing

Processing

Processed 50 of 51 files ...

Completed processing all files

238294 S3

5754692 UPDATE

1846145 UPDATED

1355066 UPDATES

572436 UPDATING

4673 UPDATABLE

165408 REFRESH

20661 REFRESHES

93335 REFRESHED

292341 REFRESHING

1221541 REVISE

94514 REVISES

177916 REVISING

1592039 REVISED



[illegible]

Processing  
Processing  
Processing  
Processed 30 of 51 files ...  
Processing  
Processing  
Processed 40 of 51 files ...  
Processing  
Processing  
Processing  
Processing  
Processing  
Processed 50 of 51 files ...  
Processing  
Processing  
Completed processing all files

5263	S4
34164354	BETWEEN
8806435	PRIOR
51109004	AFTER
33126049	BEFORE
2669541	SUBSEQUENT
1789320	SUBSEQUENTLY
3898431	TWICE
57835392	TWO
18047734	FOLLOWING
2328202	LISTEN
1144372	LISTENING
134482	LISTENS
443147	LISTENED
10578199	VIEW
3413564	VIEWS
2169605	VIEWED
1291787	VIEWING
13771086	ACCESS
148126	ACCESSES
1484593	ACCESSED
619643	ACCESSING
375	REACCESS
30	REACCESSES
99	REACCESSED
107	REACCESSING
7503399	CONTENT
9694285	COURSE
1467319	COURSES
52628	COURSEWARE
10198707	MATERIAL
9185649	MATERIALS
1467319	COURSES
629624	LECTURE
376482	LECTURES
142211	TUTORIAL
89081	TUTORIALS
45410	(((((BETWEEN OR PRIOR) OR AFTER) OR BEFORE) OR SUBSEQUENT) OR SUBSEQUENTLY) OR TWICE) OR TWO) OR FOLLOWING) (5N) (((((((((((((((LISTEN OR LISTENING) OR

```

LISTENS) OR LISTENED) OR VIEW) OR VIEWS) OR VIEWED)
OR
VIEWING) OR ACCESS) OR ACCESSES) OR ACCESSED) OR
ACCESSING) OR REACCESS) OR REACCESSES) OR REACCESSED)
OR
REACCESSING) (5N) (((((((((CONTENT OR COURSE) OR
COURSES)
OR COURSEWARE) OR MATERIAL) OR MATERIALS) OR COURSES)
OR
LECTURE) OR LECTURES) OR TUTORIAL) OR TUTORIALS)
S5      207 S4 AND ((BETWEEN OR PRIOR OR AFTER OR BEFORE OR
SUBSEQUENT OR SUBSEQUENTLY OR TWICE OR TWO OR
FOLLOWING) (5N) (LISTEN OR LISTENING OR LISTENS OR
LISTENED
OR VIEW OR VIEWS OR VIEWED OR VIEWING OR ACCESS OR
ACCESSES OR ACCESSED OR ACCESSING OR REACCESS OR
REACCESSES OR REACCESSED OR REACCESSING) (5N) (CONTENT
OR
COURSE OR COURSES OR COURSEWARE OR MATERIAL OR
MATERIALS
OR COURSES OR LECTURE OR LECTURES OR TUTORIAL OR
TUTORIALS))

```

>>> Retrying request [1]

**? s s5 and (audio or listen or listens or listened or listening)**

Processing

Processing

Processing

Processing

Processing

Processed 20 of 51 files ...

Processed 50 of 51 files ...

Completed processing all files

```

      207 S5
      2924789 AUDIO
      2328202 LISTEN
      134482 LISTENS
      443147 LISTENED
      1144372 LISTENING
S6      143 S5 AND (AUDIO OR LISTEN OR LISTENS OR LISTENED OR
LISTENING)

```

**? rd**

Processing

Processing

>>>Duplicate detection is not supported for File 347.

>>>Duplicate detection is not supported for File 348.

>>>Duplicate detection is not supported for File 349.

>>>Records from unsupported files will be retained in the RD set.

```

S7      88 RD (unique items)

```

? t s7/3/all

7/3/1 (Item 1 from file: 610)  
DIALOG(R)File 610: Business Wire  
(c) 2009 Business Wire. All rights reserved.

00796642 20021022295B2970 (USE FORMAT 7 FOR FULLTEXT)  
**IntraLinks Introduces New Capabilities to Help Pharmaceutical Companies Train and Test Investigators and Researchers; Trusted Hub Brings Investigator Training and Testing Online**

Business Wire  
Tuesday , October 22, 2002 09:03 EDT  
**Journal Code: BW Language: ENGLISH Record Type: FULLTEXT Document Type: NEWSWIRE**  
**Word Count: 673**

7/3/2 (Item 2 from file: 610)  
DIALOG(R)File 610: Business Wire  
(c) 2009 Business Wire. All rights reserved.

00716609 20020520140B0336 (USE FORMAT 7 FOR FULLTEXT)  
**Vitalect Announces Significantly Enhanced Performance and Functionality in its New Techniq Learning Content Management System 3.0-Cadence Design Systems Speeds Content Creation and Deployment with Vitalect Solution**

Business Wire  
Monday , May 20, 2002 07:00 EDT  
**Journal Code: BW Language: ENGLISH Record Type: FULLTEXT Document Type: NEWSWIRE**  
**Word Count: 885**

7/3/3 (Item 3 from file: 610)  
DIALOG(R)File 610: Business Wire  
(c) 2009 Business Wire. All rights reserved.

00356648 20000905249B2197 (USE FORMAT 7 FOR FULLTEXT)  
**class.com Partners to Provide Summer School Courses; Lincoln Northeast High School Students Succeed with Online Courses**

Business Wire  
Tuesday , September 5, 2000 14:56 EDT  
**Journal Code: BW Language: ENGLISH Record Type: FULLTEXT Document**

**Type:** NEWSWIRE  
**Word Count:** 829

7/3/4 (Item 4 from file: 610)  
DIALOG(R)File 610: Business Wire  
(c) 2009 Business Wire. All rights reserved.

00353357 20000830243B8857 (USE FORMAT 7 FOR FULLTEXT)  
**class.com Releases New Data That Proves a Strong High School Market for Internet-Based Learning; Major Milestones Validate Need For class.com's Online Courses**

Business Wire  
Wednesday , August 30, 2000 03:46 EDT  
**Journal Code:** BW **Language:** ENGLISH **Record Type:** FULLTEXT **Document Type:** NEWSWIRE  
**Word Count:** 1,112

7/3/5 (Item 5 from file: 610)  
DIALOG(R)File 610: Business Wire  
(c) 2009 Business Wire. All rights reserved.

00350053 20000824237B5492 (USE FORMAT 7 FOR FULLTEXT)  
**class.com Online Courses Bridge the Digital Divide; Pennsylvania's Learning Institute for Employment and class.com Partner to Offer High School Diploma Programs**

Business Wire  
Thursday , August 24, 2000 08:16 EDT  
**Journal Code:** BW **Language:** ENGLISH **Record Type:** FULLTEXT **Document Type:** NEWSWIRE  
**Word Count:** 854

7/3/6 (Item 6 from file: 610)  
DIALOG(R)File 610: Business Wire  
(c) 2009 Business Wire. All rights reserved.

00349074 20000823236B4498 (USE FORMAT 7 FOR FULLTEXT)  
**class.com Establishes Virtual High School for Westside Community Schools, Omaha**

Business Wire  
Wednesday , August 23, 2000 08:14 EDT  
**Journal Code:** BW **Language:** ENGLISH **Record Type:** FULLTEXT **Document Type:** NEWSWIRE

**Word Count: 860**

7/3/7 (Item 7 from file: 610)

DIALOG(R)File 610: Business Wire

(c) 2009 Business Wire. All rights reserved.

00348197 20000822235B3440 (USE FORMAT 7 FOR FULLTEXT)

**class.com Aides in Summer School Success; Felicity-Franklin High School Students Achieve Summer School Success With Online Courses**

Business Wire

Tuesday , August 22, 2000 08:05 EDT

**Journal Code: BW Language: ENGLISH Record Type: FULLTEXT Document**

**Type: NEWSWIRE**

**Word Count: 716**

7/3/8 (Item 8 from file: 610)

DIALOG(R)File 610: Business Wire

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00347298 20000821234B2454 (USE FORMAT 7 FOR FULLTEXT)

**class.com Supports Community Effort for New Virtual High School**

Business Wire

Monday , August 21, 2000 08:21 EDT

**Journal Code: BW Language: ENGLISH Record Type: FULLTEXT Document**

**Type: NEWSWIRE**

**Word Count: 1,040**

7/3/9 (Item 9 from file: 610)

DIALOG(R)File 610: Business Wire

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00337908 20000808221B3444 (USE FORMAT 7 FOR FULLTEXT)

**class.com Appoints Dr. Suzanne Logan as Director of Academic Affairs; Senior Education Executive to Provide Distance Learning Expertise to Online Education Market Leader**

Business Wire

Tuesday , August 8, 2000 07:59 EDT

**Journal Code: BW Language: ENGLISH Record Type: FULLTEXT Document**

**Type: NEWSWIRE**

**Word Count: 693**

7/3/10 (Item 10 from file: 610)  
DIALOG(R)File 610: Business Wire  
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00317337 20000711193B9027 (USE FORMAT 7 FOR FULLTEXT)  
**class.com Releases New Online Courses for High School Students; Expanded  
Course Offerings Support Fully Accredited High School Diploma**

Business Wire  
Tuesday , July 11, 2000 08:23 EDT  
**Journal Code: BW Language: ENGLISH Record Type: FULLTEXT Document  
Type: NEWSWIRE  
Word Count: 669**

7/3/11 (Item 11 from file: 610)  
DIALOG(R)File 610: Business Wire  
(c) 2009 Business Wire. All rights reserved.

00309420 20000627179B0813 (USE FORMAT 7 FOR FULLTEXT)  
**class.com Offers Online Courses to Chinese Students**

Business Wire  
Tuesday , June 27, 2000 08:32 EDT  
**Journal Code: BW Language: ENGLISH Record Type: FULLTEXT Document  
Type: NEWSWIRE  
Word Count: 690**

7/3/12 (Item 12 from file: 610)  
DIALOG(R)File 610: Business Wire  
(c) 2009 Business Wire. All rights reserved.

00306327 20000622174B7667 (USE FORMAT 7 FOR FULLTEXT)  
**class.com Selected by Windermere Prep School; The American Schools OnLine  
Launches a Complete Online Learning Curriculum for Fall 2000**

Business Wire  
Thursday , June 22, 2000 08:16 EDT  
**Journal Code: BW Language: ENGLISH Record Type: FULLTEXT Document  
Type: NEWSWIRE  
Word Count: 675**

7/3/13 (Item 13 from file: 610)  
DIALOG(R)File 610: Business Wire  
(c) 2009 Business Wire. All rights reserved.

00032361 19990420110B1288 (USE FORMAT 7 FOR FULLTEXT)

**Partnership Agreement with Centra Enables QuickStart Technologies to Extend Consulting Practice Through Live Internet Collaboration**

Business Wire

Tuesday , April 20, 1999 10:57 EDT

**Journal Code:** BW **Language:** ENGLISH **Record Type:** FULLTEXT **Document Type:** NEWSWIRE

**Word Count:** 851

7/3/14 (Item 14 from file: 610)

DIALOG(R)File 610: Business Wire

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00019201 1999081B1222 (USE FORMAT 7 FOR FULLTEXT)

**Centra Announces the First "Enterprise" Software System for Live Internet Business Collaboration**

Business Wire

Monday , March 22, 1999 09:24 EST

**Journal Code:** BW **Language:** ENGLISH **Record Type:** FULLTEXT **Document Type:** NEWSWIRE

**Word Count:** 1,359

7/3/15 (Item 1 from file: 15)

DIALOG(R)File 15: ABI/Inform(R)

(c) 2009 ProQuest Info&Learning. All rights reserved.

02674234 470006141

**An asynchronous augmentation to traditional course delivery**

Wolverton, Marvin L; Wolverton, Mimi

Journal of Real Estate Practice & Education v6n2 pp: 225-238

2003

**ISSN:** 1521-4842 **Journal Code:** RLPD

**Word Count:** 4479

7/3/16 (Item 2 from file: 15)

DIALOG(R)File 15: ABI/Inform(R)

(c) 2009 ProQuest Info&Learning. All rights reserved.

02566610 269206121

**Research note: Research services for distant learners: The OLADE project**

Matheson, Arden  
Online Information Review v25n5 pp: 321-325  
2001  
**ISSN:** 1468-4527 **Journal Code:** ONCD  
**Word Count:** 2539

7/3/17 (Item 3 from file: 15)  
DIALOG(R)File 15: ABI/Inform(R)  
(c) 2009 ProQuest Info&Learning. All rights reserved.

02340119 70570298  
**New horizons in distance education: The online learner-centered marketing class**

Eastman, Jacqueline K; Swift, Cathy Owens  
Journal of Marketing Education v23n1 pp: 25-34  
Apr 2001  
**ISSN:** 0273-4753 **Journal Code:** JMKE  
**Word Count:** 9041

7/3/18 (Item 4 from file: 15)  
DIALOG(R)File 15: ABI/Inform(R)  
(c) 2009 ProQuest Info&Learning. All rights reserved.

01618601 02-69590  
**Selecting an online authoring system**

Phillips, Vicky  
Training v35n4 pp: 53-60  
Apr 1998  
**ISSN:** 0095-5892 **Journal Code:** TBI  
**Word Count:** 2466

7/3/19 (Item 1 from file: 16)  
DIALOG(R)File 16: Gale Group PROMT(R)  
(c) 2009 Gale/Cengage. All rights reserved.

09088192 **Supplier Number:** 79209260 (USE FORMAT 7 FOR FULLTEXT)

**Web Search Engine FAQs: Questions, Answers and Issues.**  
Price, Gary  
Searcher , v 9 , n 9 , p 38  
Oct , 2001  
**Language:** English **Record Type:** Fulltext

**Document Type:** Magazine/Journal ; Professional  
**Word Count:** 8761

7/3/20 (Item 2 from file: 16)  
DIALOG(R)File 16: Gale Group PROMT(R)  
(c) 2009 Gale/Cengage. All rights reserved.

07382484 **Supplier Number:** 61204860 (USE FORMAT 7 FOR FULLTEXT)

**New Technology Drives AutoCAD Training Techniques.(Product Information)**  
Roe, Andrew G.  
Cadence , v 15 , n 1 , p 30  
Jan , 2000  
**Language:** English **Record Type:** Fulltext  
**Document Type:** Magazine/Journal ; Trade  
**Word Count:** 2620

7/3/21 (Item 3 from file: 16)  
DIALOG(R)File 16: Gale Group PROMT(R)  
(c) 2009 Gale/Cengage. All rights reserved.

07344019 **Supplier Number:** 62115296 (USE FORMAT 7 FOR FULLTEXT)

**Online CPE Rides the Learning Curve.(Internet/Web/ Online Service Information)**  
McCausland, Richard  
Accounting Technology , v 16 , n 3 , p 48  
April , 2000  
**Language:** English **Record Type:** Fulltext  
**Document Type:** Magazine/Journal ; Trade  
**Word Count:** 2256

7/3/22 (Item 4 from file: 16)  
DIALOG(R)File 16: Gale Group PROMT(R)  
(c) 2009 Gale/Cengage. All rights reserved.

05751247 **Supplier Number:** 50234726 (USE FORMAT 7 FOR FULLTEXT)

**The State of Web Publishing, 1998: Turmoil in the Consumer Market, Part 3**  
McKenzie, Matt  
The Seybold Report on Internet Publishing , v 27 , n 20 , p 3B  
August , 1998  
**Language:** English **Record Type:** Fulltext  
**Article Type:** Article  
**Document Type:** Newsletter ; Trade

**Word Count:** 3191

7/3/23 (Item 5 from file: 16)  
DIALOG(R)File 16: Gale Group PROMT(R)  
(c) 2009 Gale/Cengage. All rights reserved.

05159582 **Supplier Number:** 47874665 (USE FORMAT 7 FOR FULLTEXT)

**Interactive Distance Learning Puts College & Corporate Classrooms Online**

Deloro, Joe  
Interactivity , p N/A  
August , 1997  
**Language:** English **Record Type:** Fulltext  
**Document Type:** Magazine/Journal ; Trade  
**Word Count:** 3746

7/3/24 (Item 1 from file: 148)  
DIALOG(R)File 148: Gale Group Trade & Industry DB  
(c) 2009 Gale/Cengage. All rights reserved.

0020379348 **Supplier Number:** 101367704 (USE FORMAT 7 OR 9 FOR FULL TEXT )  
**Sexual harassment training. (Review).(Video Recording Review)**

Smith, Valerie L.  
Training Media Review , 11 , 2 , 1(15)  
March-April , 2003  
**Document Type:** Video Recording Review  
ISSN: 1072-3188  
**Language:** English  
**Record Type:** Fulltext  
**Word Count:** 5718 **Line Count:** 00568

7/3/25 (Item 2 from file: 148)  
DIALOG(R)File 148: Gale Group Trade & Industry DB  
(c) 2009 Gale/Cengage. All rights reserved.

0016814610 **Supplier Number:** 114010250 (USE FORMAT 7 OR 9 FOR FULL TEXT )  
**Conference programs.**

Information Outlook , 8 , 2 , S10(35)  
Feb , 2004  
ISSN: 1091-0808

**Language:** English  
**Record Type:** Fulltext  
**Word Count:** 16587 **Line Count:** 01514

7/3/26 (Item 3 from file: 148)  
DIALOG(R)File 148: Gale Group Trade & Industry DB  
(c) 2009 Gale/Cengage. All rights reserved.

15519056 **Supplier Number:** 94390522 (USE FORMAT 7 OR 9 FOR FULL TEXT )  
**Vitalect Announces Significantly Enhanced Performance and Functionality in its  
New Techniq Learning Content Management System 3.0.**

Business Wire , 2050  
May 20 , 2002  
**Language:** English  
**Record Type:** Fulltext  
**Word Count:** 905 **Line Count:** 00089

7/3/27 (Item 4 from file: 148)  
DIALOG(R)File 148: Gale Group Trade & Industry DB  
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14353700 **Supplier Number:** 54601193 (USE FORMAT 7 OR 9 FOR FULL TEXT )  
**DISTANCE LEARNING PLANNING, PREPARATION, AND PRESENTATION:  
INSTRUCTORS' PERSPECTIVES.(Instructional Television Fixed Signal program,  
University of South Florida)**

LOEDING, BARBARA L.; WYNN, MARJORIE  
International Journal of Instructional Media , 26 , 2 , 181(1)  
Spring , 1999  
ISSN: 0092-1815  
**Language:** English  
**Record Type:** Fulltext  
**Word Count:** 5590 **Line Count:** 00460

7/3/28 (Item 1 from file: 275)  
DIALOG(R)File 275: Gale Group Computer DB(TM)  
(c) 2009 Gale/Cengage. All rights reserved.

02686166 **Supplier Number:** 96694993 (Use Format 7 Or 9 For FULL TEXT )  
**Debunking the distance-learning myth: we've overcome the challenges of electronic  
distribution, and no technical barriers remain to prevent distance learning from  
becoming an overnight reality. So, why aren't more companies taking advantage of  
it? (tech trends).**

Cravotta, Nicholas  
EDN , 48 , 1 , 61(5)  
Jan 9 , 2003  
ISSN: 0012-7515  
**Language:** English    **Record Type:** Fulltext  
**Word Count:** 4248    **Line Count:** 00340

7/3/29 (Item 2 from file: 275)  
DIALOG(R)File 275: Gale Group Computer DB(TM)  
(c) 2009 Gale/Cengage. All rights reserved.

02619470    **Supplier Number:** 87774391 (Use Format 7 Or 9 For FULL TEXT )  
**The state of the art in locally distributed Web-server systems.**

Cardellini, Valeria; Casalicchio, Emiliano; Colajanni, Michele; Yu, Philip S.  
ACM Computing Surveys , 34 , 2 , 263(49)  
June , 2002  
ISSN: 0360-0300  
**Language:** English    **Record Type:** Fulltext; Abstract  
**Word Count:** 27802    **Line Count:** 02278

7/3/30 (Item 3 from file: 275)  
DIALOG(R)File 275: Gale Group Computer DB(TM)  
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02483296    **Supplier Number:** 70451305 (Use Format 7 Or 9 For FULL TEXT )  
**Faculty and Reference Librarians--A Virtual Dynamic Duo.(Company Business and Marketing)**

Evans, Ruby  
T H E Journal (Technological Horizons In Education) , 28 , 6 , 46  
Jan , 2001  
ISSN: 0192-592X  
**Language:** English    **Record Type:** Fulltext; Abstract  
**Word Count:** 2921    **Line Count:** 00251

7/3/31 (Item 1 from file: 631)  
DIALOG(R)File 631: Boston Globe  
(c) 2009 Boston Globe. All rights reserved.

11196164

**THE E-LEARNING ROAD UNIVERSITIES INTEGRATING CLASSES WITH**

## AN ONLINE COMPONENT AT RAPID RATE

Boston Globe ( BG ) - Sunday, July 15, 2001

**By:** Cate Coulacos Prato, GLOBE CORRESPONDENT

**Edition:** THIRD **Section:** EDUCATION **Page:** B7

**Word Count:** 900

7/3/32 (Item 1 from file: 47)

DIALOG(R)File 47: Gale Group Magazine DB(TM)

(c) 2009 Gale/Cengage. All rights reserved.

06799249 **Supplier Number:** 114476018 (USE FORMAT 7 OR 9 FOR FULL TEXT )

**2004 program tracks.(Conference)**

American Libraries , 35 , 3 , 121(41)

March , 2004

ISSN: 0002-9769

**Language:** English **Record Type:** Fulltext

**Word Count:** 26118 **Line Count:** 02653

7/3/33 (Item 2 from file: 47)

DIALOG(R)File 47: Gale Group Magazine DB(TM)

(c) 2009 Gale/Cengage. All rights reserved.

06767134 **Supplier Number:** 115036325 (USE FORMAT 7 OR 9 FOR FULL TEXT )

**Filtering and filter software.**

Ayre, Lori Bowen

Library Technology Reports , 40 , 2 , 1(78)

March-April , 2004

ISSN: 0024-2586

**Language:** English **Record Type:** Fulltext

**Word Count:** 32294 **Line Count:** 02767

7/3/34 (Item 3 from file: 47)

DIALOG(R)File 47: Gale Group Magazine DB(TM)

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05293616 **Supplier Number:** 53523836 (USE FORMAT 7 OR 9 FOR FULL TEXT )

**Remote Library Users--Needs and Expectations.(Abstract)**

COOPER, ROSEMARIE; DEMPSEY, PAULA R.; MENON, VANAJA; MILLSON-

MARTULA, CHRISTOPHER

Library Trends , 47 , 1 , 42(1)

Summer , 1998

**Document Type:** Abstract

ISSN: 0024-2594

**Language:** English **Record Type:** Fulltext

**Word Count:** 10838 **Line Count:** 00912

7/3/35 (Item 4 from file: 47)

DIALOG(R)File 47: Gale Group Magazine DB(TM)

(c) 2009 Gale/Cengage. All rights reserved.

04598250 **Supplier Number:** 18684623 (USE FORMAT 7 OR 9 FOR FULL TEXT )

**A survey of online search services. (The Availability and Cost of Online Search Services, part 1)**

Saffady, William

Library Technology Reports , v32 , n3 , p341(51)

May-June , 1996

ISSN: 0024-2586

**Language:** English **Record Type:** Fulltext; Abstract

**Word Count:** 25702 **Line Count:** 02267

7/3/36 (Item 5 from file: 47)

DIALOG(R)File 47: Gale Group Magazine DB(TM)

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04487883 **Supplier Number:** 18178442 (USE FORMAT 7 OR 9 FOR FULL TEXT )

**Technology precipitates reflective teaching: an instructional epiphany.**

Alley, Lee R.

Change , v28 , n2 , p48(7)

March-April , 1996

ISSN: 0009-1383

**Language:** English **Record Type:** Fulltext; Abstract

**Word Count:** 3989 **Line Count:** 00319

**Dialog eLink:** [Order File History](#)

7/3/37 (Item 1 from file: 348)

DIALOG(R)File 348: EUROPEAN PATENTS

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01582237

**MANAGED ACCESS TO INFORMATION OVER DATA NETWORKS**  
**GESTEUERTER ZUGRIFF AUF INFORMATIONEN UBER DATENNETZE**  
**ACCES CONTROLE A DES INFORMATIONS PAR RESEAUX DE**  
**COMMUNICATION DE DONNEES**

**Patent Assignee:**

- **Edvantage Group AS; (4394950)**  
Bygdoy alle 23; 0262 Oslo; (NO)  
(Proprietor designated states: all)

**Inventor:**

- **BJORNESTAD, Anders**  
Frederik Glads gate 21; N-0482 Oslo; (NO)
- **STENERUD, John, Oivind**  
Sagadammen 26; N-0884 Oslo; (NO)

**Legal Representative:**

- **Butler, Michael John (29061)**  
Frank B. Dehn & Co. St Bride's House 10 Salisbury Square; London EC4Y 8JD;  
(GB)

	Country	Number	Kind	Date	
Patent	EP	1428368	A1	20040616	(Basic)
	EP	1428368	B1	20080827	
	WO	2003026248		20030327	
Application	EP	2002760412		20020913	
	WO	2002GB4197		20020913	
Priorities	GB	122276		20010914	

**Designated States:**

AT; BE; BG; CH; CY; CZ; DE; DK; EE; ES;  
FI; FR; GB; GR; IE; IT; LI; LU; MC; NL;  
PT; SE; SK; TR;

**Extended Designated States:**

AL; LT; LV; MK; RO; SI;

**International Patent Class (V7):** H04L-029/06; G09B-007/02

<b>International Classification (Version 8) IPC</b>	<b>Level</b>	<b>Value</b>	<b>Position</b>	<b>Status</b>	<b>Version</b>	<b>Action</b>	<b>Source</b>	<b>Office</b>
H04L-0029/06	A	I	F	B	20060101	20030404	H	EP
G09B-0007/02	A	I	L	B	20060101	20030404	H	EP

**NOTE:** No A-document published by EPO

Legal Status	Type	Pub. Date	Kind	Text
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**Language** Publication: English

Procedural: English

Application: English

<b>Fulltext Availability</b>	<b>Available Text</b>	<b>Language</b>	<b>Update</b>	<b>Word Count</b>
CLAIMS B		(English)	200835	1089
CLAIMS B		(German)	200835	923
CLAIMS B		(French)	200835	1275
SPEC B		(English)	200835	5619
Total Word Count (Document A) 0				
Total Word Count (Document B) 8906				
Total Word Count (All Documents) 8906				

**Dialog eLink:** [Order File History](#)

7/3/38 (Item 2 from file: 348)

DIALOG(R)File 348: EUROPEAN PATENTS

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01466412

## **SYSTEM FOR PROVIDING CONTENT, MANAGEMENT, AND INTERACTIVITY FOR THIN CLIENT DEVICES**

SYSTEM ZUM ZURVERFUGUNGSTELLEN VON INHALTEN, VERWALTUNG UND INTERAKTIVITAT FUR KUNDENVORRICHTUNGEN MIT BESCHRANKTER FUNKTIONALITAT

SYSTEME FOURNISSANT UN CONTENU, UN MODE DE GESTION ET D'INTERACTIVITE A DES DISPOSITIFS DE CLIENTS LEGERS

**Patent Assignee:**

- **Simple Devices;** (4012590)  
111 Anza Boulevard, Suite 120; Burlingame, CA 94010; (US)  
(Proprietor designated states: all)

**Inventor:**

- **JANIK, Craig, M.**  
25566 Fernhill Drive; Los Altos Hills, CA 94024; (US)

**Legal Representative:**

- **Wombwell, Francis et al (46021)**  
Potts, Kerr & Co. 15, Hamilton Square; Birkenhead Merseyside L41 6B; (GB)

	Country	Number	Kind	Date	
Patent	EP	1378102	A1	20040107	(Basic)
	EP	1378102	B1	20051228	
	WO	2002065732		20020822	
Application	EP	2001979776		20011011	
	WO	2001US31996		20011011	
Priorities	US	268434	P	20010212	
	US	841268		20010424	

**Designated States:**

AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LI; LU; MC; NL; PT; SE; TR;

**Extended Designated States:**

AL; LT; LV; MK; RO; SI;

**International Patent Class (V7):** H04L-029/06 ; H04L-012/28

**NOTE:** No A-document published by EPO

Legal Status	Type	Pub. Date	Kind	Text
--------------	------	-----------	------	------

**Language Publication:** English

Procedural: English

Application: English

Fulltext Availability	Available Text	Language	Update	Word Count
CLAIMS B		(English)	200552	1159
CLAIMS B		(German)	200552	1179
CLAIMS B		(French)	200552	1397

Fulltext Availability	Available Text	Language	Update	Word Count
SPEC B		(English)	200552	13952
Total Word Count (Document A) 0				
Total Word Count (Document B) 17687				
Total Word Count (All Documents) 17687				

**Dialog eLink:** [Order File History](#)

7/3/39 (Item 1 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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01095836

**INTERNET-BASED EDUCATION SUPPORT SYSTEM, METHOD AND MEDIUM WITH MODULAR TEXT-EDITING COMPONENT FOR USE IN A WEB-BASED APPLICATION**

SYSTEME DE SOUTIEN EDUCATIF SUR L'INTERNET, PROCEDE ET SUPPORT COMPRENANT UN COMPOSANT D'EDITION DE TEXTE MODULAIRE UTILISE DANS UNE APPLICATION SUR LE WEB

**Patent Applicant/Patent Assignee:**

- **BLACKBOARD INC**  
1899 L Street, N.W., 5th Floor, Washington, DC 20036; US; US(Residence); US(Nationality)

**Inventor(s):**

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1899 L Street, NW, 5th Floor, Washington, DC 20036; US
- **BROWN Dorothy R**  
1899 L Street, NW, 5th Floor, Washington, DC 20036; US
- **ETESSE Christopher E**  
1899 L Street, N.W., 5th Floor, Washington, DC 20036; US
- **FONTAINE John S**  
1899 L Street, NW, 5th Floor, Washington, DC 20036; US
- **PERIAN Scott N**  
1899 L Street, NW, 5th Floor, Washington, DC 20036; US
- **RINZEL Daniel F**  
1899 L Street, NW, 5th Floor, Washington, DC 20036; US
- **YASKIN David**  
1899 L Street, NW, 5th Floor, Washington, DC 20036; US

**Legal Representative:**

- **KENNARD Wayne M(agent)**  
Hale and Door LLP, 60 State Street, Boston, MA 02109; US;

	Country	Number	Kind	Date
Patent	WO	200417277	A2	<b>20040226</b>
Application	WO	2003US25697		20030819
Priorities	US	2002404276		20020819
	US	2002406304		20020828
	US	2003449507		20030225

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,  
BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ,  
DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD,  
GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,  
KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,  
LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,  
NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU,  
SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,  
TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA,  
ZM, ZW

[EP] AT; BE; BG; CH; CY; CZ; DE; DK; EE; ES;  
FI; FR; GB; GR; HU; IE; IT; LU; MC; NL;  
PT; RO; SE; SI; SK; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW;  
ML; MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZM; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

Filing Language: English

Fulltext word count: 27971

**Dialog eLink:** [Order File History](#)

7/3/40 (Item 2 from file: 349)

01095835

**INTERNET-BASED EDUCATION SUPPORT SYSTEM, METHOD AND  
MEDIUM PROVIDING SECURITY ATTRIBUTES IN MODULAR,  
EXTENSIBLE COMPONENTS**

SYSTEME DE SOUTIEN EDUCATIF SUR L'INTERNET, PROCEDE ET SUPPORT  
PERMETTANT D'OBTENIR DES ATTRIBUTS DE SECURITE DANS DES  
COMPOSANTS EXTENSIBLES MODULAIRES

**Patent Applicant/Patent Assignee:**

- **BLACKBOARD INC**  
1899 L Street, N.W., 5th Floor, Washington, DC 20036; US; US(Residence);  
US(Nationality)

**Inventor(s):**

- **ALCORN Robert L**  
1899 L Street, NW, 5th Floor, Washington, DC 20036; US
- **BROWN Dorothy R**  
1899 L Street, NW, 5th Floor, Washington, DC 20036; US
- **ETESSE Christopher E**  
1899 L Street, N.W., 5th Floor, Washington, DC 20036; US
- **FONTAINE John S**  
1899 L Street, NW, 5th Floor, Washington, DC 20036; US
- **PERIAN Scott N**  
1899 L Street, NW, 5th Floor, Washington, DC 20036; US
- **RINZEL Daniel F**  
1899 L Street, NW, 5th Floor, Washington, DC 20036; US
- **YASKIN David**  
1899 L Street, NW, 5th Floor, Washington, DC 20036; US

**Legal Representative:**

- **KENNARD Wayne M(agent)**  
Hale and Dorr LLP, 60 State Street, Boston, MA 02109; US;

	Country	Number	Kind	Date
Patent	WO	200417245	A2	20040226
Application	WO	2003US25696		20030819
Priorities	US	2002404276		20020819
	US	2002406304		20020828

	Country	Number	Kind	Date
	US	2003449507		20030225

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,  
BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ,  
DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD,  
GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,  
KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,  
LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,  
NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU,  
SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,  
TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA,  
ZM, ZW

[EP] AT; BE; BG; CH; CY; CZ; DE; DK; EE; ES;  
FI; FR; GB; GR; HU; IE; IT; LU; MC; NL;  
PT; RO; SE; SI; SK; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW;  
ML; MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZM; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

Filing Language: English

Fulltext word count: 27889

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7/3/41 (Item 3 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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01086409

**SYSTEM AND METHOD FOR CREATING PACKAGING TO PROVIDE  
ACCESS TO INTERNET**  
EMBALLAGE DESTINE A UN ACCES A INTERNET ET PROCEDE ASSOCIE

**Patent Applicant/Patent Assignee:**

- **24 7 TECHNOLOGIES INC**  
852 Foster Avenue, Bensenville, IL 60106; US; US(Residence); US(Nationality);  
(For all designated states except: US)

**Patent Applicant/Inventor:**

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826 Seers Drive, Schaumburg, IL 60173; US; US(Residence); US(Nationality);  
(Designated only for: US)
- **ABATE Joseph P**  
673 Kingsbridge Drive, Cerol Stream, IL 60188; US; US(Residence);  
US(Nationality); (Designated only for: US)

**Legal Representative:**

- **KOFFS Steven E Esquire(agent)**  
Duane Morris LLP, One Liberty Place, Philadelphia, PA 19103-7396; US;

	Country	Number	Kind	Date
Patent	WO	200408677	A2-A3	<b>20040122</b>
Application	WO	2003US22460		20030715
Priorities	US	2002195646		20020715

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,  
BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ,  
DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD,  
GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,  
KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,  
LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,  
NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE,  
SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA,  
UG, US, UZ, VN, YU, ZA, ZM, ZW

[EP] AT; BE; BG; CH; CY; CZ; DE; DK; EE; ES;  
FI; FR; GB; GR; HU; IE; IT; LU; MC; NL;  
PT; RO; SE; SI; SK; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW;  
ML; MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZM; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

Filing Language: English

Fulltext word count: 5504

**Dialog eLink:** [Order File History](#)

7/3/42 (Item 4 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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01071497

**INTERNET-BASED EDUCATION SUPPORT SYSTEM AND METHOD WITH  
MULTI-LANGUAGE CAPABILITY**

SYSTEME ET PROCEDE DE SUPPORT D'ENSEIGNEMENT BASES SUR  
L'INTERNET AVEC COMPETENCE MULTILINGUE

**Patent Applicant/Patent Assignee:**

- **BLACKBOARD INC**  
1899 L Street, N.W., 5th Floor, Washington, DC 20036; US; US(Residence);  
US(Nationality)

**Inventor(s):**

- **ETESSE Christopher E**  
1899 L Street, N.W., 5th Floor, Washington, DC 20036; US
- **WEST Jennifer R**  
1899 L Street, N.W., 5th Floor, Washington, DC 20036; US

**Legal Representative:**

- **DISCHER Gregory S(et al)(agent)**  
Hale & Dorr LLP, The Willard Office Building, 1455 Pennsylvania Avenue,  
N.W., Washington, DC 20004; US;

	Country	Number	Kind	Date
Patent	WO	2003100745	A2	<b>20031204</b>
Application	WO	2003US16094		20030522
Priorities	US	2002382079		20020522
	US	2002404276		20020819

	Country	Number	Kind	Date
	US	2002406304		20020828
	US	2003449507		20030225

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,  
BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ,  
DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD,  
GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,  
KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,  
LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,  
NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC,  
SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT,  
TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW

[EP] AT; BE; BG; CH; CY; CZ; DE; DK; EE; ES;  
FI; FR; GB; GR; HU; IE; IT; LU; MC; NL;  
PT; RO; SE; SI; SK; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW;  
ML; MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZM; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

Filing Language: English

Fulltext word count: 22495

**Dialog eLink:** [Order File History](#)

7/3/43 (Item 5 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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01066614

## METHOD AND SYSTEM FOR MEDIA

PROCEDE ET SYSTEME POUR CONTENU MULTIMEDIA

**Patent Applicant/Inventor:**

- **RISAN Hank**  
515 Washington Street, Santa Cruz, CA 95060; US; US(Residence);  
US(Nationality)
- **FITZGERALD Edward Vincent**  
100 Peach Terrace, Santa Cruz, CA 95060; US; US(Residence); US(Nationality)

**Legal Representative:**

- **GALLENSON Mavis S(et al)(agent)**  
Ladas & Parry, 5670 Wilshire Boulevard, Suite 2100, Los Angeles, CA 90036;  
US;

	Country	Number	Kind	Date
Patent	WO	200396340	A2	20031120
Application	WO	2003US14878		20030510
Priorities	US	2002379979		20020510
	US	2002378011		20020510
	US	2002218241		20020813
	US	2002235293		20020904
	US	2002304390		20021125
	US	2002325243		20021218
	US	2003364643		20030210
	US	2003451231		20030228
	US	2003430843		20030505
	US	2003430477		20030505

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,  
BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ,  
DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD,  
GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,  
KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,  
LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,  
NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC,  
SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT,  
TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW

[EP] AT; BE; BG; CH; CY; CZ; DE; DK; EE; ES;  
FI; FR; GB; GR; HU; IE; IT; LU; MC; NL;  
PT; RO; SE; SI; SK; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW;  
ML; MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZM; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

Filing Language: English

Fulltext word count: 222812

**Dialog eLink:** [Order File History](#)

7/3/44 (Item 6 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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01010941

## **A DYNAMICALLY CONFIGURABLE COLLABORATION SYSTEM AND METHOD**

SYSTEME ET METHODE DE COLLABORATION CONFIGURABLE DE MANIERE DYNAMIQUE

### **Patent Applicant/Patent Assignee:**

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	Country	Number	Kind	Date
Patent	WO	200341033	A1	<b>20030515</b>
Application	WO	2002US32742		20021015
Priorities	US	2001328445		20011012

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,  
BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ,  
DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD,  
GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,  
KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,  
LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,  
NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE,  
SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ,  
UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

[EP] AT; BE; BG; CH; CY; CZ; DE; DK; EE; ES;  
FI; FR; GB; GR; IE; IT; LU; MC; NL; PT;  
SE; SK; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW;  
ML; MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZM; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

Filing Language: English

Fulltext word count: 12729

**Dialog eLink:** [Order File History](#)

7/3/45 (Item 7 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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01009065

**COMPUTERIZED INTERACTIVE LEARNING SYSTEM AND METHOD OVER  
A NETWORK**  
SYSTEME D'APPRENTISSAGE INFORMATISE

**Patent Applicant/Patent Assignee:**

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	Country	Number	Kind	Date
Patent	WO	200339101	A2-A3	<b>20030508</b>
Application	WO	2002US35286		20021101
Priorities	US	2001334714		20011101
	US	2002400606		20020801

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,  
BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ,  
DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD,  
GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,  
KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,  
LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,  
NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE,  
SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ,  
UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW

[EP] AT; BE; BG; CH; CY; CZ; DE; DK; EE; ES;  
FI; FR; GB; GR; IE; IT; LU; MC; NL; PT;

SE; SK; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW;  
ML; MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZM; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

Filing Language: English

Fulltext word count: 19879

**Dialog eLink:** [Order File History](#)

7/3/46 (Item 8 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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01004318

**SYSTEMS AND METHODS FOR CONDUCTING ELECTRONIC COMMERCE  
TRANSACTIONS REQUIRING MICROPAYMENT**  
SYSTEMES ET PROCEDES PERMETTANT D'EFFECTUER DES TRANSACTIONS  
DE COMMERCE ELECTRONIQUE NECESSITANT UN MICROPAIEMENT

**Patent Applicant/Patent Assignee:**

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**Legal Representative:**

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	Country	Number	Kind	Date
Patent	WO	200334310	A1	20030424

	Country	Number	Kind	Date
Application	WO	2002US25354		20020807
Priorities	US	2001311446		20010809
	US	200257420		20020125

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,  
BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ,  
DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD,  
GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,  
KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,  
LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,  
NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE,  
SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ,  
UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW

[EP] AT; BE; BG; CH; CY; CZ; DE; DK; EE; ES;  
FI; FR; GB; GR; IE; IT; LU; MC; NL; PT;  
SE; SK; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW;  
ML; MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZM; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

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Fulltext word count: 30794

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7/3/47 (Item 9 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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00996199

**MANAGED ACCESS TO INFORMATION OVER DATA NETWORKS**

ACCES CONTROLE A DES INFORMATIONS PAR RESEAUX DE  
COMMUNICATION DE DONNEES

**Patent Applicant/Patent Assignee:**

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**Patent Applicant/Inventor:**

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	Country	Number	Kind	Date
Patent	WO	200326248	A1	20030327
Application	WO	2002GB4197		20020913
Priorities	GB	200122276		20010914
	US	200127908		20011221

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT (utility model), AT, AU, AZ, BA, BB,  
BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,  
CZ (utility model), CZ, DE (utility model), DE, DK (utility model), DK, DM, DZ, EC,  
EE (utility model),  
EE, ES, FI (utility model), FI, GB, GD, GE, GH, GM, HR,  
HU, ID, IL, IN, IS, JP, KE, KG, KP, KR,  
KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,  
PL, PT, RO, RU, SD, SE, SG, SI, SK (utility model), SK,  
SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US,  
UZ, VC, VN, YU, ZA, ZM, ZW

[EP] AT; BE; BG; CH; CY; CZ; DE; DK; EE; ES;  
FI; FR; GB; GR; IE; IT; LU; MC; NL; PT;

SE; SK; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW;  
ML; MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZM; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

Filing Language: English

Fulltext word count: 8895

**Dialog eLink:** [Order File History](#)

7/3/48 (Item 10 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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00945845

## **CONTENT DISTRIBUTION SYSTEM** SYSTEME DE DISTRIBUTION DE CONTENU

### **Patent Applicant/Patent Assignee:**

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**Legal Representative:**

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	Country	Number	Kind	Date
Patent	WO	200280009	A1	<b>20021010</b>
Application	WO	2001US24073		20010801
Priorities	US	2001280626		20010330
	US	2001921096		20010731

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,  
BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ,  
DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE,  
GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU,  
LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO,  
NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK,  
SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN,  
YU, ZA, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LU; MC; NL; PT; SE; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW;  
ML; MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

Filing Language: English

Fulltext word count: 7634

**Dialog eLink:** [Order File History](#)

7/3/49 (Item 11 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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00931657

**SYSTEM FOR PROVIDING CONTENT, MANAGEMENT, AND  
INTERACTIVITY FOR THIN CLIENT DEVICES**

SYSTEME FOURNISSANT UN CONTENU, UN MODE DE GESTION ET  
D'INTERACTIVITE A DES DISPOSITIFS DE CLIENTS LEGERS

**Patent Applicant/Patent Assignee:**

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**Inventor(s):**

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**Legal Representative:**

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Los Angeles, CA 90025; US;

	Country	Number	Kind	Date
Patent	WO	200265732	A1	<b>20020822</b>
Application	WO	2001US31996		20011011
Priorities	US	2001268434		20010212
	US	2001841268		20010424

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,  
BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ,  
DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD,  
GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,  
KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,  
LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,  
NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG,  
SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG,  
UZ, VN, YU, ZA, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;

GR; IE; IT; LU; MC; NL; PT; SE; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW;  
ML; MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

Filing Language: English

Fulltext word count: 14966

**Dialog eLink:** [Order File History](#)

7/3/50 (Item 12 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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00928662

**METHODS AND SYSTEMS FOR CONTROLLING AN EXERCISE  
APPARATUS USING A PORTABLE REMOTE DEVICE**

PROCEDES ET SYSTEMES SERVANT A COMMANDER DES APPAREILS  
D'ACTIVITE PHYSIQUE AU MOYEN D'UN DISPOSITIF PORTATIF A DISTANCE

**Patent Applicant/Patent Assignee:**

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	Country	Number	Kind	Date
Patent	WO	200262425	A1	20020815
Application	WO	2001US15530		20010515
Priorities	US	2001776410		20010202

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,  
BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ,  
DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE,  
GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU,  
LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO,  
NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK,  
SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN,  
YU, ZA, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LU; MC; NL; PT; SE; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML;  
MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

Filing Language: English

Fulltext word count: 36469

**Dialog eLink:** [Order File History](#)

7/3/51 (Item 13 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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00925720

**NETWORK SERVER AND METHOD FOR DELIVERING A SUBSCRIBER-SPECIFIC INFORMATION VIA A COMMUNICATION NETWORK**  
SERVEUR DE RESEAU ET PROCEDE DE DIFFUSION D'INFORMATIONS SPECIFIQUES A UN ABONNE PAR UN RESEAU DE COMMUNICATION

**Patent Applicant/Inventor:**

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**Legal Representative:**

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	Country	Number	Kind	Date
Patent	WO	200259804	A1	<b>20020801</b>
Application	WO	2001EP768		20010124
Priorities	WO	2001EP768		20010124

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,  
BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE,  
DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH,  
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG,  
KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV,  
MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ,  
PL, PT, RO, RU, SD, SE, SG, SI, SK, SL,  
TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN,  
YU, ZA, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LU; MC; NL; PT; SE; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML;  
MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

Filing Language: English

Fulltext word count: 10225

**Dialog eLink:** [Order File History](#)  
7/3/52 (Item 14 from file: 349)  
DIALOG(R)File 349: PCT FULLTEXT  
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00897614

**AUTOMATED TESTING AND ELECTRONIC INSTRUCTIONAL DELIVERY  
AND STUDENT MANAGEMENT SYSTEM**  
SYSTEME DE TEST AUTOMATISE, D'ENSEIGNEMENT ELECTRONIQUE ET DE  
GESTION D'ETUDIANT

**Patent Applicant/Patent Assignee:**

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**Legal Representative:**

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	Country	Number	Kind	Date
Patent	WO	200231799	A1	<b>20020418</b>
Application	WO	2001US28645		20010914
Priorities	US	2000233061		20000914

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,  
BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ,  
DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD,  
GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,  
KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,  
LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,  
NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG,

SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG,  
US, UZ, VN, YU, ZA, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LU; MC; NL; PT; SE; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW;  
ML; MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

Filing Language: English

Fulltext word count: 10252

**Dialog eLink:** [Order File History](#)  
7/3/53 (Item 15 from file: 349)  
DIALOG(R)File 349: PCT FULLTEXT  
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00887198

**INTEGRATED ON-LINE COURSE REGISTRATION SCHEDULING  
PARTICIPANT TRANSCRIPT AND ADMINISTRATIVE MONITORING  
SYSTEM**

RELEVÉ DES RESULTATS DE PARTICIPANT INTEGRE POUR  
L'ETABLISSEMENT DU CALENDRIER D'INSCRIPTION EN LIGNE A DES  
COURS ET SYSTEME DE CONTROLE ADMINISTRATIF

**Patent Applicant/Patent Assignee:**

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**Legal Representative:**

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	Country	Number	Kind	Date
Patent	WO	200221379	A1	<b>20020314</b>
Application	WO	2001US27412		20010905
Priorities	US	2000655057		20000905

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,  
BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE,  
DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE,  
GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU,  
LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO,  
NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI,  
SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ,  
VN, YU, ZA, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LU; MC; NL; PT; SE; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW;  
ML; MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

Filing Language: English

Fulltext word count: 13339

**Dialog eLink:** [Order File History](#)

7/3/54 (Item 16 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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00885088

# METHOD AND SYSTEM FOR PROVIDING A KNOWLEDGE EXCHANGE PORTAL

PROCEDE ET SYSTEME DE PORTIQUE D'ECHANGE DE CONNAISSANCES

## Patent Applicant/Patent Assignee:

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## Legal Representative:

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	Country	Number	Kind	Date
Patent	WO	200219215	A1	20020307
Application	WO	2001US26910		20010829
Priorities	US	2000652853		20000831

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,  
BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ,  
DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE,  
GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU,  
LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO,  
NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK,  
SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN,  
YU, ZA, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LU; MC; NL; PT; SE; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW;  
ML; MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

Filing Language: English

Fulltext word count: 7603

**Dialog eLink:** [Order File History](#)

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DIALOG(R)File 349: PCT FULLTEXT

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00881343

## **VERTICAL SERVICES INTEGRATION ENABLED CONTENT DISTRIBUTION MECHANISMS**

MECANISMES DE DISTRIBUTION DE CONTENU COMPATIBLES AVEC UNE  
INTEGRATION DE SERVICES VERTICAUX

### **Patent Applicant/Patent Assignee:**

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	Country	Number	Kind	Date
Patent	WO	200215492	A1	20020221
Application	WO	2001US24696		20010807

	Country	Number	Kind	Date
Priorities	US	2000635695		20000810
	US	2001835649		20010417

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,  
BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ,  
DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD,  
GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,  
KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,  
LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,  
NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI,  
SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ,  
VN, YU, ZA, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LU; MC; NL; PT; SE; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW;  
ML; MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

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Fulltext word count: 24788

**Dialog eLink:** [Order File History](#)

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DIALOG(R)File 349: PCT FULLTEXT

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00880987

**A SYSTEM FOR MATCHING CUSTOMERS WITH CONSULTANTS**  
SYSTEME PERMETTANT DE METTRE EN CORRESPONDANCE DES CLIENTS  
AVEC DES CONSULTANTS

**Patent Applicant/Patent Assignee:**

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**Inventor(s):**

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**Legal Representative:**

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	Country	Number	Kind	Date
Patent	WO	200215085	A1	<b>20020221</b>
Application	WO	2001US25135		20010813
Priorities	US	2000636547		20000811

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,  
BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ,  
DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD,  
GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,  
KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,  
LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,  
NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI,  
SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ,  
VN, YU, ZA, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LU; MC; NL; PT; SE; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW;  
ML; MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

Filing Language: English

Fulltext word count: 15999

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7/3/57 (Item 19 from file: 349)  
DIALOG(R)File 349: PCT FULLTEXT  
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00865303

**SYSTEM TO SUPPORT MOBILE VISUAL COMMUNICATIONS**  
**SYSTEME DE GESTION DES COMMUNICATIONS VISUELLES MOBILES**

**Patent Applicant/Patent Assignee:**

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**Legal Representative:**

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	Country	Number	Kind	Date
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	Country	Number	Kind	Date
Patent	WO	200198854	A2-A3	<b>20011227</b>
Application	WO	2001CN1031		20010621
Priorities	US	2000212959		20000621
	US	2000694643		20001023

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)  
CN, SG

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LU; MC; NL; PT; SE; TR;

**Language** Publication Language: English

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Fulltext word count: 10676

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00858342

## **SYSTEM AND METHOD FOR OFFERING COURSES** **SYSTEME ET PROCEDE DE DIFFUSION DE COURS**

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### **Legal Representative:**

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	Country	Number	Kind	Date
Patent	WO	200191006	A1	20011129
Application	WO	2001US16434		20010522
Priorities	US	2000575505		20000522

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,  
BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ,  
DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE,  
GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU,  
LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO,  
NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK,  
SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN,  
YU, ZA, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LU; MC; NL; PT; SE; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML;  
MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

Filing Language: English

Fulltext word count: 17744

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00836144

**NETWORKED INTERACTIVE TOY SYSTEM**  
**SYSTEME DE JOUETS INTERACTIFS EN RESEAU**

**Patent Applicant/Patent Assignee:**

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	Country	Number	Kind	Date
Patent	WO	200169830	A2-A3	20010920
Application	WO	2001IL248		20010314
Priorities	US	2000189914		20000316
	US	2000189915		20000316
	US	2000189916		20000316
	US	2000190874		20000321
	US	2000191300		20000321
	US	2000192011		20000324
	US	2000192012		20000324
	US	2000192013		20000324
	US	2000192014		20000324

	Country	Number	Kind	Date
	US	2000193697		20000331
	US	2000193699		20000331
	US	2000193702		20000331
	US	2000193703		20000331
	US	2000193704		20000331
	US	2000195861		20000407
	US	2000195862		20000407
	US	2000195863		20000407
	US	2000195864		20000407
	US	2000195865		20000407
	US	2000195866		20000407
	US	2000196227		20000410
	US	2000197573		20000417
	US	2000197576		20000417
	US	2000197577		20000417
	US	2000197578		20000417
	US	2000197579		20000417
	US	2000200508		20000428
	US	2000200513		20000428
	US	2000200639		20000428
	US	2000200640		20000428
	US	2000200641		20000428
	US	2000200647		20000428
	US	2000203175		20000508
	US	2000203177		20000508
	US	2000203182		20000508
	US	2000203244		20000508
	US	2000204201		20000515
	US	2000204200		20000515
	US	2000207126		20000525
	US	2000207128		20000525
	US	2000208105		20000526
	US	2000208390		20000530
	US	2000208391		20000530

	Country	Number	Kind	Date
	US	2000208392		20000530
	US	2000209471		20000605
	US	2000210443		20000608
	US	2000210445		20000608
	US	2000212696		20000619
	US	2000215360		20000630
	US	2000216237		20000705
	US	2000216238		20000705
	US	2000217357		20000712
	US	2000219234		20000718
	US	2000220276		20000724
	US	2000221933		20000731
	US	2000223877		20000808
	US	2000227112		20000822
	US	2000229371		20000830
	US	2000229648		20000831
	US	2000231105		20000908
	US	2000231103		20000908
	US	2000234883		20000925
	US	2000234895		20000925
	US	2000239329		20001010
	US	2000253362		20001127
	US	2000250332		20001129
	US	2000254699		20001211
	US	2001267350		20010208

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,  
BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ,  
DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE,  
GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU,  
LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO,  
NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK,  
SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ,  
VN, YU, ZA, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LU; MC; NL; PT; SE; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML;  
MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

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Fulltext word count: 189040

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00820481

**PROTECTED ACCOUNTABLE PRIMARY FOCAL NODE INTERFACE**  
INTERFACE PROTEGEE RESPONSABILISEE SOUS FORME DE NOEUD FOCAL  
PRIMAIRE

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**Patent Applicant/Inventor:**

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**Legal Representative:**

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	Country	Number	Kind	Date
Patent	WO	200154044	A1	<b>20010726</b>
Application	WO	2001US1645		20010119
Priorities	US	2000176818		20000119
	US	2000200872		20000501

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,  
BR, BY, CA, CH, CN, CR, CZ, DE, DK, DM,  
DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR,  
HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ,  
LC, LK, LR, LS, LT, LU, LV, MA, MD, MG,  
MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO,  
RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR,  
TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LU; MC; NL; PT; SE; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML;  
MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

Filing Language: English

Fulltext word count: 69601

**Dialog eLink:** [Order File History](#)

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DIALOG(R)File 349: PCT FULLTEXT

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00814145

## **A METHOD FOR EXECUTING A NETWORK-BASED CREDIT APPLICATION PROCESS**

PROCEDE DE MISE EN OEUVRE D'UN PROCESSUS DE DEMANDE DE CREDIT  
EN RESEAU

**Patent Applicant/Patent Assignee:**

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**Legal Representative:**

- **HICKMAN Paul L(agent)**  
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US;

	Country	Number	Kind	Date
Patent	WO	200146889	A2	<b>20010628</b>
Application	WO	2000US35216		20001222
Priorities	US	99470805		19991222
	US	99469525		19991222
	US	99470039		19991222

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY,  
CA, CH, CN, CU, CZ, DE, DK, DM, DZ, EE,  
ES, FI, GB, GE, GH, GM, HR, HU, ID, IL,  
IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,  
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,  
MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG,  
SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ,  
VN, YU, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LU; MC; NL; PT; SE; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML;  
MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

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Fulltext word count: 98671

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00814140

**A METHOD FOR A VIRTUAL TRADE FINANCIAL FRAMEWORK**  
**PROCEDE DESTINE A UN SCHEMA FINANCIER DE COMMERCE VIRTUEL**

**Patent Applicant/Patent Assignee:**

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**Legal Representative:**

- **HICKMAN Paul L(agent)**  
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	Country	Number	Kind	Date
Patent	WO	200146846	A2	<b>20010628</b>
Application	WO	2000US35429		20001222
Priorities	US	99470030		19991222
	US	99470041		19991222
	US	99470044		19991222

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY,  
CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI,  
GB, GE, GH, GM, HR, HU, ID, IL, IS, JP,  
KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,  
LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ,  
PL, PT, RO, RU, SD, SE, SG, SI, SK, SL,  
TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LU; MC; NL; PT; SE; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML;  
MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

Filing Language: English

Fulltext word count: 106212

**Dialog eLink:** [Order File History](#)

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00806392

**TECHNOLOGY SHARING DURING ASSET MANAGEMENT AND ASSET  
TRACKING IN A NETWORK-BASED SUPPLY CHAIN ENVIRONMENT AND  
METHOD THEREOF**

PARTAGE TECHNOLOGIQUE LORS DE LA GESTION ET DU SUIVI DU PARC  
INFORMATIQUE DANS UN ENVIRONNEMENT DU TYPE CHAINE  
D'APPROVISIONNEMENT RESEAUTEE, ET PROCEDE ASSOCIE

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	Country	Number	Kind	Date
Patent	WO	200139086	A2	20010531
Application	WO	2000US32310		20001122
Priorities	US	99444653		19991122
	US	99447623		19991122

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR,  
BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK,  
DM, DZ, EE, ES, FI, GB, GE, GH, GM, HR,  
HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ,  
LC, LK, LR, LS, LT, LU, LV, MA, MD, MG,  
MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO,  
RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR,  
TT, TZ, UA, UG, UZ, VN, YU, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LU; MC; NL; PT; SE; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML;  
MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

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00806389

**SCHEDULING AND PLANNING BEFORE AND PROACTIVE MANAGEMENT  
DURING MAINTENANCE AND SERVICE IN A NETWORK-BASED SUPPLY  
CHAIN ENVIRONMENT**

PROGRAMMATION ET PLANIFICATION ANTICIPEE, ET GESTION PROACTIVE  
AU COURS DE LA MAINTENANCE ET DE L'ENTRETIEN D'UN  
ENVIRONNEMENT DU TYPE CHAINE D'APPROVISIONNEMENT RESEAUTEE

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	Country	Number	Kind	Date
Patent	WO	200139082	A2	<b>20010531</b>
Application	WO	2000US32228		20001122
Priorities	US	99447625		19991122
	US	99444889		19991122

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY,  
CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI,  
GB, GE, GH, GM, HR, HU, ID, IL, IS, JP,  
KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,  
LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ,  
PL, PT, RO, RU, SD, SE, SG, SI, SK, SL,

TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LU; MC; NL; PT; SE; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML;  
MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

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00806384

**NETWORK AND LIFE CYCLE ASSET MANAGEMENT IN AN E-COMMERCE  
ENVIRONMENT AND METHOD THEREOF**

GESTION D'ACTIFS DURANT LE CYCLE DE VIE ET EN RESEAU DANS UN  
ENVIRONNEMENT DE COMMERCE ELECTRONIQUE ET PROCEDE ASSOCIE

**Patent Applicant/Patent Assignee:**

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	Country	Number	Kind	Date
Patent	WO	200139030	A2	20010531
Application	WO	2000US32324		20001122
Priorities	US	99444775		19991122
	US	99447621		19991122

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR,  
 BY, BZ, CA, CH, CN, CU, CZ, DE, DK, DZ,  
 EE, ES, FI, GB, GE, GH, GM, HR, HU, ID,  
 IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK,  
 LR, LS, LT, LU, LV, MD, MG, MK, MN, MW,  
 MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE,  
 SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG,  
 UZ, VN, YU, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
 GR; IE; IT; LU; MC; NL; PT; SE; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML;  
 MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
 UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

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00806383

**COLLABORATIVE CAPACITY PLANNING AND REVERSE INVENTORY  
 MANAGEMENT DURING DEMAND AND SUPPLY PLANNING IN A  
 NETWORK-BASED SUPPLY CHAIN ENVIRONMENT AND METHOD  
 THEREOF**

PLANIFICATION EN COLLABORATION DES CAPACITES ET GESTION  
ANTICIPEE DES STOCKS LORS DE LA PLANIFICATION DE L'OFFRE ET DE LA  
DEMANDE DANS UN ENVIRONNEMENT DE CHAINE  
D'APPROVISIONNEMENT FONDEE SUR LE RESEAU ET PROCEDE ASSOCIE

**Patent Applicant/Patent Assignee:**

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	Country	Number	Kind	Date
Patent	WO	200139029	A2	20010531
Application	WO	2000US32309		20001122
Priorities	US	99444655		19991122
	US	99444886		19991122

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR,  
BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK,  
DM, DZ, EE, ES, FI, GB, GE, GH, GM, HR,  
HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ,  
LC, LK, LR, LS, LT, LU, LV, MA, MD, MG,  
MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO,  
RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR,  
TT, TZ, UA, UG, UZ, VN, YU, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LU; MC; NL; PT; SE; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML;  
MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;

UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

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00806382

**METHOD FOR AFFORDING A MARKET SPACE INTERFACE BETWEEN A PLURALITY OF MANUFACTURERS AND SERVICE PROVIDERS AND INSTALLATION MANAGEMENT VIA A MARKET SPACE INTERFACE**  
PROCEDE DE MISE A DISPOSITION D'UNE INTERFACE D'ESPACE DE MARCHE ENTRE UNE PLURALITE DE FABRICANTS ET DES FOURNISSEURS DE SERVICES ET GESTION D'UNE INSTALLATION VIA UNE INTERFACE D'ESPACE DE MARCHE

**Patent Applicant/Patent Assignee:**

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	Country	Number	Kind	Date
Patent	WO	200139028	A2	20010531
Application	WO	2000US32308		20001122
Priorities	US	99444773		19991122

	Country	Number	Kind	Date
	US	99444798		19991122

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,  
BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE,  
DK, DM, DZ, EE, ES, FI, GB, GE, GH, GM,  
HR, HU, ID, IL, IS, JP, KE, KG, KP, KR,  
KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT,  
RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,  
TR, TT, TZ, UA, UG, UZ, VN, YU, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LU; MC; NL; PT; SE; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML;  
MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

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00784143

## **SYSTEM, METHOD AND ARTICLE OF MANUFACTURE FOR LOAD BALANCING REQUESTS AMONG SERVERS**

SYSTEME, PROCEDE ET ARTICLE POUR EQUILIBREUR DE CHARGE DANS  
UN ENVIRONNEMENT DE STRUCTURES DE SERVICES

**Patent Applicant/Patent Assignee:**

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	Country	Number	Kind	Date
Patent	WO	200116739	A2-A3	<b>20010308</b>
Application	WO	2000US24236		20000831
Priorities	US	99387576		19990831

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AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,  
BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE,  
DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH,  
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG,  
KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV,  
MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ,  
PL, PT, RO, RU, SD, SE, SG, SI, SK, SL,  
TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU,  
ZA, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LU; MC; NL; PT; SE;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML;  
MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
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[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

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00784132

**A SYSTEM, METHOD AND ARTICLE OF MANUFACTURE FOR A LEGACY WRAPPER IN A COMMUNICATION SERVICES PATTERNS ENVIRONMENT**  
**SYSTEME, PROCEDE ET DISPOSITIF POUR MODULE D'HABILLAGE**  
**EXISTANT DANS UN ENVIRONNEMENT DE SCHEMAS DE SERVICES DE**  
**COMMUNICATION**

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**Inventor(s):**

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	Country	Number	Kind	Date
Patent	WO	200116724	A2-A3	<b>20010308</b>
Application	WO	2000US24084		20000831
Priorities	US	99386834		19990831

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR,  
BY, BZ, CA, CH, CN, CU, CZ, DE, DK, DZ,  
EE, ES, FI, GB, GE, GH, GM, HR, HU, ID,  
IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK,  
LR, LS, LT, LU, LV, MD, MG, MK, MN, MW,  
MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE,

SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG,  
UZ, VN, YU, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LU; MC; NL; PT; SE;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML;  
MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
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00784131

**A SYSTEM, METHOD AND ARTICLE OF MANUFACTURE FOR A MULTI-  
OBJECT FETCH COMPONENT IN AN INFORMATION SERVICES  
PATTERNS ENVIRONMENT**

SYSTEME, PROCEDE ET ARTICLE MANUFACTURE POUR COMPOSANT DE  
RECUPERATION MULTI-OBJET DANS UN ENVIRONNEMENT CARACTERISE  
PAR DES SERVICES D'INFORMATIONS

**Patent Applicant/Patent Assignee:**

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	Country	Number	Kind	Date
Patent	WO	200116723	A2-A3	<b>20010308</b>
Application	WO	2000US24083		20000831
Priorities	US	99386238		19990831

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CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE,  
ES, FI, GB, GE, GH, GM, HR, HU, ID, IL,  
IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,  
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,  
MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG,  
SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG,  
UZ, VN, YU, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LU; MC; NL; PT; SE;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML;  
MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

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00784126

**SYSTEM, METHOD, AND ARTICLE OF MANUFACTURE FOR AN  
EXCEPTION RESPONSE TABLE IN ENVIRONMENT SERVICES PATTERNS**  
SYSTEME, PROCEDE ET ARTICLE DE PRODUCTION DESTINES A UNE TABLE  
DE REPONSE D'EXCEPTION DANS DES CONFIGURATIONS DE SERVICES  
D'ENVIRONNEMENT

**Patent Applicant/Patent Assignee:**

- **ACCENTURE LLP**  
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**Inventor(s):**

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**Legal Representative:**

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	Country	Number	Kind	Date
Patent	WO	200116706	A2-A3	<b>20010308</b>
Application	WO	2000US24086		20000831
Priorities	US	99387873		19990831

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR,  
BY, BZ, CA, CH, CN, CU, CZ, DE, DK, DZ,  
EE, ES, FI, GB, GE, GH, GM, HR, HU, ID,  
IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK,  
LR, LS, LT, LU, LV, MD, MG, MK, MN, MW,  
MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE,  
SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG,  
UZ, VN, YU, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LU; MC; NL; PT; SE;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML;  
MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;

UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

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00784124

**SYSTEM, METHOD, AND ARTICLE OF MANUFACTURE FOR A REQUEST  
SORTER IN A TRANSACTION SERVICES PATTERNS ENVIRONMENT**  
SYSTEME, PROCEDE ET ARTICLE DE FABRICATION APPLIQUES DANS UN  
TRIEUR DE REQUETES D'UN ENVIRONNEMENT DE STRUCTURES DE  
SERVICES DE TRANSACTIONS

**Patent Applicant/Patent Assignee:**

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**Inventor(s):**

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**Legal Representative:**

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Oppenheimer Wolff & Donnelly, LLP, 38th floor, 2029 Century Park East, Los Angeles, CA 90067-3024; US;

	Country	Number	Kind	Date
Patent	WO	200116704	A2-A3	<b>20010308</b>
Application	WO	2000US24082		20000831
Priorities	US	99386715		19990831

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications

prior to 2004)

AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY,  
CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI,  
GB, GE, GH, GM, HR, HU, ID, IL, IS, JP,  
KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,  
LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ,  
PL, PT, RO, RU, SD, SE, SG, SI, SK, SL,  
TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LU; MC; NL; PT; SE;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML;  
MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

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00777020

**A SYSTEM, METHOD AND ARTICLE OF MANUFACTURE FOR RESOURCE  
ADMINISTRATION IN AN E-COMMERCE TECHNICAL ARCHITECTURE**  
SYSTEME, PROCEDE ET ARTICLE MANUFACTURE POUR  
L'ADMINISTRATION DE RESSOURCES DANS UNE ARCHITECTURE  
TECHNIQUE DE COMMERCE ELECTRONIQUE

**Patent Applicant/Patent Assignee:**

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(For all designated states except: US)

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**Legal Representative:**

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0746; US;

	Country	Number	Kind	Date
Patent	WO	200109791	A2-A3	<b>20010208</b>
Application	WO	2000US20547		20000728
Priorities	US	99364161		19990730

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,  
BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE,  
DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH,  
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG,  
KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV,  
MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ,  
PL, PT, RO, RU, SD, SE, SG, SI, SK, SL,  
TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN,  
YU, ZA, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LU; MC; NL; PT; SE;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML;  
MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

Filing Language: English

Fulltext word count: 136396

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00777011

**A SYSTEM, METHOD AND ARTICLE OF MANUFACTURE FOR A CODES  
TABLE FRAMEWORK DESIGN IN AN E-COMMERCE ARCHITECTURE**  
SYSTEME, PROCEDE ET ARTICLE FABRIQUE POUR LA CONCEPTION D'UNE  
STRUCTURE DE TABLES DE CODES DANS UNE ARCHITECTURE DE  
COMMERCE ELECTRONIQUE

**Patent Applicant/Patent Assignee:**

- **AC PROPERTIES BV**  
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**Patent Applicant/Inventor:**

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**Legal Representative:**

- **HICKMAN Paul L(agent)**  
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	Country	Number	Kind	Date
Patent	WO	200109716	A2-A3	<b>20010208</b>
Application	WO	2000US20705		20000728
Priorities	US	99364491		19990730

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY,  
CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI,  
GB, GE, GH, GM, HR, HU, ID, IL, IS, JP,  
KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,  
LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ,  
PL, PT, RO, RU, SD, SE, SG, SI, SK, SL,  
TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU,  
ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LU; MC; NL; PT; SE;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML;  
MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

Filing Language: English

Fulltext word count: 136146

**Dialog eLink:** [Order File History](#)  
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DIALOG(R)File 349: PCT FULLTEXT  
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00774574

## MULTIMEDIA TRAINING SYSTEM SYSTEME DE FORMATION MULTIMEDIA

### Patent Applicant/Patent Assignee:

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One South Wacker Drive, Suite 3200, Chicago, IL 60606; US; US(Residence);  
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6322 N. Leroy Avenue, Chicago, IL 60646; US; US(Residence); US(Nationality);  
(Designated only for: US )

### Legal Representative:

- **HARNEY Timothy L**

Bell, Boyd & Lloyd LLC, P.O. Box 1135, Chicago, IL 60690-1135; US;

	Country	Number	Kind	Date
Patent	WO	200108124	A1	<b>20010201</b>
Application	WO	2000US20000		20000720
Priorities	US	99145418		19990723
	US	2000177969		20000125
	US	200		20000720

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,  
BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE,  
DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH,  
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG,  
KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV,  
MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ,  
PL, PT, RO, RU, SD, SE, SG, SI, SK, SL,  
TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN,  
YU, ZA, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LU; MC; NL; PT; SE;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML;  
MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

Filing Language: English

Fulltext word count: 17535

**Dialog eLink:** [Order File History](#)

7/3/76 (Item 38 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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00771266

**METHOD AND APPARATUS FOR CREATING AND EXECUTING INTERNET  
BASED LECTURES USING PUBLIC DOMAIN WEB PAGES**

PROCEDE ET APPAREIL D'ORGANISATION ET D'EXECUTION DE  
CONFERENCES VIA INTERNET EN UTILISANT DES PAGES DU DOMAINE  
PUBLIQUE DU WEB

**Patent Applicant/Patent Assignee:**

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**Legal Representative:**

- **BOYS Donald R**  
P.O. Box 187, Aromas, CA 95004; US;

	Country	Number	Kind	Date
Patent	WO	200104762	A1	20010118
Application	WO	2000US13461		20000516
Priorities	US	99349640		19990708

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,  
BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK,  
DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM,  
HR, HU, ID, IL, IN, IS, JP, KE, KG, KP,  
KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA,  
MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT,  
RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,  
TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LU; MC; NL; PT; SE;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML;  
MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; SD; SL; SZ; TZ; UG;

ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

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**Dialog eLink:** [Order File History](#)

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DIALOG(R)File 349: PCT FULLTEXT

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00766127

**SYSTEM FOR SOUND FILE RECORDING, ANALYSIS, AND ARCHIVING VIA  
THE INTERNET FOR LANGUAGE TRAINING AND OTHER APPLICATIONS**  
SYSTEME D'ENREGISTREMENT, D'ANALYSE ET D'ARCHIVAGE DE FICHIERS  
SON VIA INTERNET POUR L'APPRENTISSAGE DES LANGUES ET AUTRES  
APPLICATIONS

**Patent Applicant/Patent Assignee:**

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**Patent Applicant/Inventor:**

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(Designated only for: US )

**Legal Representative:**

- **TROESCH Hans R**  
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	Country	Number	Kind	Date
Patent	WO	200079505	A1	20001228
Application	WO	2000US17218		20000622

	Country	Number	Kind	Date
Priorities	US	99339462		19990623

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR,  
 BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM,  
 EE, ES, FI, GB, GD, GE, GH, GM, HR, HU,  
 ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ,  
 LC, LK, LR, LS, LT, LU, LV, MA, MD, MG,  
 MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU,  
 SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT,  
 TZ, UA, UG, US, UZ, VN, YU, ZA, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
 GR; IE; IT; LU; MC; NL; PT; SE;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML;  
 MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
 UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

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Fulltext word count: 8374

**Dialog eLink:** [Order File History](#)

7/3/78 (Item 40 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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00761432

## **METHODS, CONCEPTS AND TECHNOLOGY FOR DYNAMIC COMPARISON OF PRODUCT FEATURES AND CUSTOMER PROFILE**

PROCEDES, CONCEPTS ET TECHNIQUE DE COMPARAISON DYNAMIQUE DE  
 CARACTERISTIQUES D'UN PRODUIT ET DU PROFIL DES CONSOMMATEURS

**Patent Applicant/Patent Assignee:**

- **ACCENTURE LLP**  
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757 Pine Avenue\$San Jose, CA 95125; US; (Designated for all)

**Legal Representative:**

- **BRUESS Steven C(agent)**  
Merchant & Gould P.C., P.O. Box 2903, Minneapolis, MN 55402-0903; US;

	Country	Number	Kind	Date
Patent	WO	200073958	A2	20001207
Application	WO	2000US14459		20000524
Priorities	US	99320818		19990527

**Designated States:** (All protection types applied unless otherwise stated - for applications 2004+)

AE; AG; AL; AM; AT; AU; AZ; BA; BB; BG;  
BR; BY; CA; CH; CN; CR; CU; CZ; DE; DK;  
DM; DZ; EE; ES; FI; GB; GD; GE; GH; GM;  
HR; HU; ID; IL; IN; IS; JP; KE; KG; KP;  
KR; KZ; LC; LK; LR; LS; LT; LU; LV; MA;  
MD; MG; MK; MN; MW; MX; MZ; NO; NZ; PL;  
PT; RO; RU; SD; SE; SG; SI; SK; SL; TJ;  
TM; TR; TT; TZ; UA; UG; UZ; VN; YU; ZA;  
ZW;

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,  
BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK,  
DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM,  
HR, HU, ID, IL, IN, IS, JP, KE, KG, KP,  
KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA,  
MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL,  
PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ,  
TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA,

ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LU; MC; NL; PT; SE;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML;  
MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

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Fulltext word count: 151011

**Dialog eLink:** [Order File History](#)

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DIALOG(R)File 349: PCT FULLTEXT

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00761431

**A SYSTEM, METHOD, AND ARTICLE OF MANUFACTURE FOR PROVIDING  
COMMERCE-RELATED WEB APPLICATION SERVICES**

SYSTEME, PROCEDE ET ARTICLE MANUFACTURE DESTINES A LA  
FOURNITURE DE SERVICES D'APPLICATION DANS LE WEB LIES AU  
COMMERCE

**Patent Applicant/Patent Assignee:**

- **ACCENTURE LLP**  
100 South Wacker Drive, Chicago, IL 60606; US; US(Residence);  
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**Inventor(s):**

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757 Pine Avenue, San Jose, CA 95125; US

**Legal Representative:**

- **BRUESS Steven C(agent)**  
Merchant & Gould P.C., P.O. Box 2903, Minneapolis, MN 55402-0903; US;

	Country	Number	Kind	Date
Patent	WO	200073957	A2-A3	<b>20001207</b>
Application	WO	2000US14420		20000525
Priorities	US	99321492		19990527

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT, AT (utility model), AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, CZ (utility model), DE, DE (utility model), DK, DK (utility model), DM, DZ, EE, EE (utility model), ES, FI, FI (utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KR (utility model), KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (utility model), SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LU; MC; NL; PT; SE;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML; MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ; UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

Filing Language: English

Fulltext word count: 150171

**Dialog eLink:** [Order File History](#)

7/3/80 (Item 42 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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00761430

**SYSTEM, METHOD AND COMPUTER PROGRAM FOR REPRESENTING  
PRIORITY INFORMATION CONCERNING COMPONENTS OF A SYSTEM**  
SYSTEME, METHODE ET ARTICLE FABRIQUE PERMETTANT DE CLASSER  
PAR ORDRE DE PRIORITE DES COMPOSANTS D'UNE STRUCTURE DE  
RESEAU NECESSAIRES A LA MISE EN OEUVRE D'UNE TECHNIQUE

**Patent Applicant/Patent Assignee:**

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**Legal Representative:**

- **BRUESS Steven C(agent)**  
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	Country	Number	Kind	Date
Patent	WO	200073956	A2-A3	20001207
Application	WO	2000US14406		20000524
Priorities	US	99321274		19990527

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT (utility model), AT, AU, AZ, BA, BB,  
BG, BR, BY, CA, CH, CN, CR, CU, CZ (utility model), CZ,  
DE (utility model), DE, DK (utility model), DK, DM, DZ, EE (utility model), EE, ES, FI  
(utility model),  
FI, GB, GD, GE, GH, GM, HR, HU, ID, IL,  
IN, IS, JP, KE, KG, KP, KR (utility model), KR, KZ, LC,  
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK,  
MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU,  
SD, SE, SG, SI, SK (utility model), SK, SL, TJ, TM, TR,  
TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;

GR; IE; IT; LU; MC; NL; PT; SE;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML;  
MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

Filing Language: English

Fulltext word count: 149024

**Dialog eLink:** [Order File History](#)

7/3/81 (Item 43 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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00761429

**METHODS, CONCEPTS AND TECHNOLOGY FOR A VIRTUAL SHOPPING  
SYSTEM CAPABLE OF ASSESSING NEEDS OF A CUSTOMER AND  
RECOMMENDING A PRODUCT OR SERVICE BASED ON SUCH ASSESSED  
NEEDS**

PROCEDES, CONCEPTS ET TECHNOLOGIE POUR SYSTEME D'ACHAT  
VIRTUEL CAPABLE D'EVALUER LES BESOINS D'UN CLIENT ET DE  
RECOMMANDER UN PRODUIT OU UN SERVICE SUR LA BASE DE CES  
BESOINS

**Patent Applicant/Patent Assignee:**

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757 Pine Avenue, San Jose, CA 95125; US

**Legal Representative:**

- **BRUESS Steven C(agent)**  
Merchant & Gould P.C., P.O. Box 2903, Minneapolis, MN 55402-0903; US;

	Country	Number	Kind	Date
Patent	WO	200073955	A2	20001207
Application	WO	2000US14357		20000524
Priorities	US	99321495		19990527

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,  
BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK,  
DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM,  
HR, HU, ID, IL, IN, IS, JP, KE, KG, KP,  
KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA,  
MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL,  
PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ,  
TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA,  
ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LU; MC; NL; PT; SE;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML;  
MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

Filing Language: English

Fulltext word count: 148469

**Dialog eLink:** [Order File History](#)

7/3/82 (Item 44 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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00761424

**A SYSTEM, METHOD, AND ARTICLE OF MANUFACTURE FOR PHASE DELIVERY OF COMPONENTS OF A SYSTEM REQUIRED FOR IMPLEMENTATION OF TECHNOLOGY**  
**SYSTEME, PROCEDE ET ARTICLE MANUFACTURE DESTINES A LA FOURNITURE PAR PHASES DE COMPOSANTS D'UN SYSTEME NECESSAIRES A L'APPLICATION D'UNE TECHNIQUE**

**Patent Applicant/Patent Assignee:**

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**Inventor(s):**

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**Legal Representative:**

- **BRUESS Steven C(agent)**  
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	Country	Number	Kind	Date
Patent	WO	200073930	A2	20001207
Application	WO	2000US14458		20000524
Priorities	US	99321360		19990527

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT, AT (utility model), AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, CZ (utility model), DE, DE (utility model), DK, DK (utility model), DM, DZ, EE, EE (utility model), ES, FI, FI (utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KR (utility model), KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (utility model), SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;

GR; IE; IT; LU; MC; NL; PT; SE;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML;  
MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

Filing Language: English

Fulltext word count: 149456

**Dialog eLink:** [Order File History](#)

7/3/83 (Item 45 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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00761423

**A SYSTEM, METHOD, AND ARTICLE OF MANUFACTURE FOR  
EFFECTIVELY CONVEYING WHICH COMPONENTS OF A SYSTEM ARE  
REQUIRED FOR IMPLEMENTATION OF TECHNOLOGY**  
SYSTEME, PROCEDE ET ARTICLE MANUFACTURE POUR L'ACHEMINEMENT  
EFFICACE DES COMPOSANTS D'UN SYSTEME NECESSAIRES A LA MISE EN  
PRATIQUE D'UNE TECHNOLOGIE

**Patent Applicant/Patent Assignee:**

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**Legal Representative:**

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Merchant & Gould P.C., P.O. Box 2903, Minneapolis, MN 55402-0903; US;

	Country	Number	Kind	Date
Patent	WO	200073929	A2	20001207
Application	WO	2000US14457		20000524
Priorities	US	99321136		19990527

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT, AT (utility model), AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, CZ (utility model), DE, DE (utility model), DK, DK (utility model), DM, DZ, EE, EE (utility model), ES, FI, FI (utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KR (utility model), KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (utility model), SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LU; MC; NL; PT; SE;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML; MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ; UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

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Fulltext word count: 150133

**Dialog eLink:** [Order File History](#)

7/3/84 (Item 46 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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00761422

**BUSINESS ALLIANCE IDENTIFICATION**

SYSTEME, PROCEDE ET ARTICLE DE PRODUCTION POUR L'IDENTIFICATION  
D'ALLIANCES COMMERCIALES DANS UN CADRE D'ARCHITECTURE RESEAU

**Patent Applicant/Patent Assignee:**

- **ACCENTURE LLP**  
100 South Wacker Drive, Chicago, IL 60606; US; US(Residence);  
US(Nationality)

**Inventor(s):**

- **GUHEEN Michael F**  
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757 Pine Avenue, San Jose, CA 95125; US

**Legal Representative:**

- **BRUESS Steven C(agent)**  
Merchant, Gould, Smith, Edell, Welter & Schmidt, P.A., P.O. Box 2903,  
Minneapolis, MN 55402-0903; US;

	Country	Number	Kind	Date
Patent	WO	200073928	A2-A3	20001207
Application	WO	2000US14375		20000524
Priorities	US	99320816		19990527

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,  
BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK,  
DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM,  
HR, HU, ID, IL, IN, IS, JP, KE, KG, KP,  
KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA,  
MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL,  
PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ,  
TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA,  
ZW

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;  
GR; IE; IT; LU; MC; NL; PT; SE;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML;  
MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

**Language** Publication Language: English

Filing Language: English

Fulltext word count: 149371

**Dialog eLink:** [Order File History](#)

7/3/85 (Item 47 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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00557584

**SYSTEM FOR PROVIDING A USER WITH ACTIVE AND PASSIVE ACCESS  
TO CACHED CONTENT**

SYSTEME PERMETTANT A UN UTILISATEUR D'ACCEDER DE MANIERE  
ACTIVE ET PASSIVE A UN CONTENU D'ANTEMEMOIRE

**Patent Applicant/Patent Assignee:**

- **WORLDSPACE MANAGEMENT CORPORATION**

**Inventor(s):**

- **NIELSON Peter**
- **HARMON James**
- **QUINN Kevin**

	Country	Number	Kind	Date
Patent	WO	200020957	A1	20000413
Application	WO	99US21827		19990921
Priorities	US	98165385		19981002

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AE, AL, AM, AT, AU, AZ, BA, BB, BG,  
BR, BY, CA, CH, CN, CR, CU, CZ, DE,

DE, DK, DK, DM, EE, EE, ES, FI, FI, GB,  
GD, GE, GH, GM, HR, HU, ID, IL, IN, IS,  
JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS,  
LT, LU, LV, MD, MG, MK, MN, MW, MX, NO,  
NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK,  
SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ,  
VN, YU, ZA, ZW, GH, GM, KE, LS, MW, SD,  
SL, SZ, TZ, UG, ZW, AM, AZ, BY, KG, KZ,  
MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK,  
ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,  
PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN,  
GW, ML, MR, NE, SN, TD, TG

**Language** Publication Language: English

Filing Language:

Fulltext word count: 9017

**Dialog eLink:** [Order File History](#)

7/3/86 (Item 48 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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00456834

**A SYSTEM, METHOD AND ARTICLE OF MANUFACTURE FOR SWITCHED  
TELEPHONY COMMUNICATION**

SYSTEME PROCEDURE ET ARTICLE CONCU POUR LES COMMUNICATIONS  
TELEPHONIQUES PAR RESEAU COMMUTE

**Patent Applicant/Patent Assignee:**

- **MCI WORLDCOM INC**

**Inventor(s):**

- **ZEY David A**

	Country	Number	Kind	Date
Patent	WO	9847298	A2	19981022
Application	WO	98US7927		19980415
Priorities	US	97835789		19970415
	US	97834320		19970415

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY,  
CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI,  
GB, GE, GH, HU, IL, IS, JP, KE, KG, KP,  
KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD,  
MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO,  
RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR,  
TT, UA, UG, UZ, VN, YU, ZW, GH, GM, KE,  
LS, MW, SD, SZ, UG, ZW, AM, AZ, BY, KG,  
KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE,  
DK, ES, FI, FR, GB, GR, IE, IT, LU, MC,  
NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA,  
GN, ML, MR, NE, SN, TD, TG

**Language** Publication Language: English

Filing Language:

Fulltext word count: 156638

**Dialog eLink:** [Order File History](#)

7/3/87 (Item 49 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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00432616

## **A COMMUNICATION SYSTEM ARCHITECTURE**

SYSTEME, PROCEDE ET PRODUIT MANUFACTURE POUR L'ARCHITECTURE  
D'UN SYSTEME DE COMMUNICATION

### **Patent Applicant/Patent Assignee:**

- **MCI COMMUNICATIONS CORPORATION**
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- **STEELE Rick D**
- **GALVIN Thomas J**
- **LAFRENIERE Lawrence L**
- **KRISHNASWAMY Sridhar**
- **FORGY Glen A**
- **REYNOLDS Tim E**
- **SOLBRIG Erin M**
- **CERF Vinton**
- **GROSS Phil**
- **DUGAN Andrew J**

- **SIMS William A**
- **HOLMES Allen**
- **SMITH Robert S II**
- **KELLY Patrick J III**
- **GOTTLIEB Louis G**
- **COLLIER Matthew T**
- **WILLE Andrew N**
- **RINDE Joseph**
- **LITZENBERGER Paul D**
- **TURNER Don A**
- **WALTERS John J**
- **EASTEP Guido M**
- **MARSHALL David D**
- **PRICE Ricky A**
- **SALEH Bilal A**

**Inventor(s):**

- **ELLIOTT Isaac K**
- **STEELE Rick D**
- **GALVIN Thomas J**
- **LAFRENIERE Lawrence L**
- **KRISHNASWAMY Sridhar**
- **FORGY Glen A**
- **REYNOLDS Tim E**
- **SOLBRIG Erin M**
- **CERF Vinton**
- **GROSS Phil**
- **DUGAN Andrew J**
- **SIMS William A**
- **HOLMES Allen**
- **SMITH Robert S II**
- **KELLY Patrick J III**
- **GOTTLIEB Louis G**
- **COLLIER Matthew T**
- **WILLE Andrew N**
- **RINDE Joseph**
- **LITZENBERGER Paul D**
- **TURNER Don A**
- **WALTERS John J**
- **EASTEP Guido M**
- **MARSHALL David D**
- **PRICE Ricky A**
- **SALEH Bilal A**

	<b>Country</b>	<b>Number</b>	<b>Kind</b>	<b>Date</b>
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	Country	Number	Kind	Date
Patent	WO	9823080	A2	<b>19980528</b>
Application	WO	97US21174		19971114
Priorities	US	96751203		19961118
	US	96751668		19961118
	US	96752271		19961118
	US	96758734		19961118
	US	96751209		19961118
	US	96751661		19961118
	US	96752236		19961118
	US	96752487		19961118
	US	96752269		19961118
	US	96751923		19961118
	US	96751658		19961118
	US	96752552		19961118
	US	96751933		19961118
	US	96751663		19961118
	US	96746899		19961118
	US	96751915		19961118
	US	96752400		19961118
	US	96751922		19961118
	US	96751961		19961118

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY,  
CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI,  
GB, GE, GH, HU, IL, IS, JP, KE, KG, KP,  
KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD,  
MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO,  
RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR,  
TT, UA, UG, US, UZ, VN, YU, ZW, GH, KE,  
LS, MW, SD, SZ, UG, ZW, AM, AZ, BY, KG,  
KZ, MD, RU, TJ, TM, AT, BE, CH, DE, DK,  
ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,  
PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN,  
ML, MR, NE, SN, TD, TG

**Language** Publication Language: English

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Fulltext word count: 168195

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00404022

**AGENT BASED INSTRUCTION SYSTEM AND METHOD**  
**SYSTEME ET PROCEDE D'ENSEIGNEMENT ASSISTE PAR AGENT**

**Patent Applicant/Patent Assignee:**

- **AGENT BASED CURRICULA INC**
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- **LUKAS George**
- **LUKAS Andrew V**
- **PADWA David J**

**Inventor(s):**

- **COOK Donald A**
- **LUKAS George**
- **LUKAS Andrew V**
- **PADWA David J**

	Country	Number	Kind	Date
Patent	WO	9744766	A1	19971127
Application	WO	97US8685		19970522
Priorities	US	96651422		19960522
	US	9737108		19970131

**Designated States:** (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AL, AM, AU, AZ, BA, BB, BG, BR, BY, CA,  
CN, CU, CZ, EE, GE, GH, HU, IL, IS, JP,  
KG, KP, KR, KZ, LC, LK, LR, LT, LV, MD,  
MG, MK, MN, MX, NO, NZ, PL, RO, RU, SG,  
SI, SK, TJ, TM, TR, TT, UA, US, UZ, VN,  
YU, GH, KE, LS, MW, SD, SZ, UG, AM, AZ,  
BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH,

DE, DK, ES, FI, FR, GB, GR, IE, IT, LU,  
MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM,  
GA, GN, ML, MR, NE, SN, TD, TG

**Language** Publication Language: English

Filing Language:

Fulltext word count: 46180

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Set	Items	Description
S1	126495513	PD<20040309
S2	427760	S1 AND ((ONLINE OR "ON-LINE" OR DISTANCE OR INTERNET OR (W- EB(W)BASED)) (5N) (TRAIN OR TRAINING OR TRAINED OR TRAINS OR ED- UCATION OR EDUCATIONAL OR LEARN OR LEARNING OR LEARNS OR LEAR- NED))
S3	238294	S2 AND (CONTENT OR COURSEWARE OR COURSEWARES OR COURSE OR - COURSES OR TUTORIAL OR TUTORIALS OR MATERIAL OR MATERIALS)
S4	5263	S3 AND ((UPDATE OR UPDATED OR UPDATES OR UPDATING OR UPDAT- ABLE OR REFRESH OR REFRESHES OR REFRESHED OR REFRESHING OR RE- VISE OR REVISES OR REVISING OR REVISED) (5N) (CONTENT OR COURSE OR COURSES OR COURSEWARE OR MATERIAL OR MATERIALS OR COURSES - OR LECTURE OR LECTURES OR TUTORIAL OR TUTORIALS))
S5	207	S4 AND ((BETWEEN OR PRIOR OR AFTER OR BEFORE OR SUBSEQUENT OR SUBSEQUENTLY OR TWICE OR TWO OR FOLLOWING) (5N) (LISTEN OR L- ISTENING OR LISTENS OR LISTENED OR VIEW OR VIEWS OR VIEWED OR VIEWING OR ACCESS OR ACCESSES OR ACCESSED OR ACCESSING OR REA- CCESS OR REACCESSES OR REACCESSED OR REACCESSING) (5N) (CONTENT OR COURSE OR COURSES OR COURSEWARE OR MATERIAL OR MATERIALS OR COURSES OR LECTURE OR LECTURES OR TUTORIAL OR TUTORIALS))
S6	143	S5 AND (AUDIO OR LISTEN OR LISTENS OR LISTENED OR LISTENIN- G)
S7	88	RD (unique items)

>>> Retrying request [1]

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7/K/1 (Item 1 from file: 610)  
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## **IntraLinks Introduces New Capabilities to Help Pharmaceutical Companies Train and Test Investigators and Researchers; Trusted Hub Brings Investigator Training and Testing Online**

### **Text:**

...to  
accelerate the speed of their drug development process and reduce expenses.  
The new features include:

- Investigator Meetings: IntraLinks digital workspaces provide multimedia capabilities, including **audio**, video and slides, for investigator meetings. In place of traveling to remote meeting locations, potential investigators can view meeting presentations online, eliminating travel costs and...

...Training: Digital workspaces can now be used to certify investigators in such areas as Good Clinical Practice. Investigators can also use digital workspace training to **refresh** their knowledge of **material**. **After**

**viewing** a presentation online, potential investigators can be tested on the **content**. IntraLinks' reporting functions let clinical trial managers monitor who has completed training sessions.

- Testing: IntraLinks can create customized testing modules for use in **online training**. Tests are self-administered

through the secure workspace environment, and results are available immediately. Trial managers can view reports of results for all test-takers...

...Jenkins, General Manager of Life Sciences at IntraLinks. "This latest enhancement extends the benefits of using IntraLinks for clinical trials by allowing these companies to **train** and test potential investigators **online**, and makes IntraLinks a more powerful service for use throughout the lifecycle of a clinical trial."

"IntraLinks' new capabilities have enabled us to transform our processes for investigator meetings by completing the **training** and testing of physicians **online**," said Robin Kelen, RN Medical Product Manager with US Medical Research at Aventis. "We have been able to reach out to a greater number of..."

...reducing the number of investigator meetings and increasing flexibility and convenience for physicians. Over 400 of our study recruits have elected to participate in the **training** and testing option offered **online** through IntraLinks."

The **training** and testing capabilities are the latest features that IntraLinks has introduced to reduce the number of days to complete study start-up for all phases...

7/K/2 (Item 2 from file: 610)  
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### **Vitalect Announces Significantly Enhanced Performance and Functionality in its New Techniq Learning Content Management System 3.0-Cadence Design Systems Speeds Content Creation and Deployment with Vitalect Solution**

#### **Text:**

Vitalect, a premier provider of learning **content** management solutions, today announced significant performance enhancements to its new Techniq(SM) Learning **Content** Management System (LCMS) 3.0. This newest release of its Techniq authoring and delivery system speeds and simplifies the conversion and delivery of custom **content** for **online training** and customer support.

"Cadence Design Systems has been a longtime user of Vitalect to develop the **Internet Learning** Series (iLS) **courses**. With this new release of the Techniq Author 3.0, Cadence(R) curriculum developers can more rapidly develop, deploy and maintain engaging **content** for the **Internet Learning** Series," said Bonnie Willoughby, Senior Marketing Director of Customer Education at Cadence Design Systems. "Vitalect's newest Techniq LCMS 3.0 release is a robust, scalable platform for creating, assembling, storing, managing and delivering eLearning **content** for Cadence **Internet Learning** Series customers. The feedback from our

customers consistently indicates that they like the fact that **content** can be easily customized and readily available."  
...solution  
include the capacity to:

- Allow authors to more easily create, assemble and share meta-tagged learning objects
- Enable authors to easily upload and download **content** using their favorite authoring tools
- Support a single user interface for authors, instructors, learners and administrators that simplifies **course** creation and ongoing **course updates**
- Simplify version control and workflow management with a graphically based change tracking mechanism
- Support an expanded learner collaboration model with build-in live connections between students, instructors and subject matter experts.

"Vitalect's entire focus is on solving customer problems in their learning programs with simplicity in **content** development, creation, reuse and accessibility for just-in-time learning," observed Pran Kurup, chief executive officer and president of Vitalect. "That's why we've developed a solution with fine learning object granularity that permits **content** to be easily authored, metatagged, stored, searched and retrieved by users. Our unique single log-on capability further simplifies access, enabling all who access our...

...and administrators -- to change roles through one simple interface."

Cushing Anderson, program manager for IDC's Learning Research Group, observed,  
"Companies who produce lots of **content** must simplify learning **content** management for themselves and make distribution of **content** convenient to the various learner communities. Vitalect provides a solution that leverages **content** developer's time by keeping the focus on 'what's new.' At the same time, the solution helps ensure that only meaningful, relevant **content** is presented to the learner by focusing on what the learner needs to know. That is a powerful combination."

Vitalect's new Techniq 3.0 Learning **Content** Management System includes both an authoring and a delivery capability. Techniq Author 3.0 is a **content** authoring system that enables domain experts and instructional designers (

## **course**

authors) to create compelling, personalized **learning** experiences for **web-based** delivery to their learners. Techniq Author provides an easy-to-use interface where authors or instructors can design, create, assemble and import **content** directly into the **course** structure with a few simple mouse clicks. Developers can compare changes with previous versions and can easily see and share information regarding **course** modifications through an elegant summary of **course** edits. **Course** developers can simply preview **content** prior to publishing, and results are **viewed** and verified quickly, ensuring accuracy and speed in **course** authoring. Using Techniq Author, authors can easily create, deliver and track online exams using a variety of question and answer formats.

Techniq Tutor 3.0, Vitalelect's **content** delivery system, is a distinct yet integrated component of the LCMS for the delivery of self-paced learning and tracking of associated learner data. Learners are engaged with custom **course** **content** delivered via the most effective utilization of the web's most compelling media, including streaming **audio** and video, animations and simulations. Real-time, instructor-led communication via WebEx (Nasdaq:WEBX), self-paced learning curricula, and additional interactive learning experiences using chat...

...in enhancing retention and reducing time to competency. Learners are able to take online notes and share them with peers; instructors are able to enhance **content** by adding supplemental notes for **courses** tailored to the skill sets of different learning audiences. Detailed progress tracking gives learners and instructors alike detailed information about student progress and **content** usage.

Vitalelect's Techniq LCMS 3.0 is based on the learning object model of the IEEE LTSC and the IMS metadata specification. It was developed using a J2EE compliant application, JAVA technology, and JDBC for database agnostic connectivity.

About Vitalelect

Vitalect, Inc. is a leading provider of custom eLearning **content** solutions designed to accelerate the rate of knowledge transfer across the enterprise for corporate leaders in highly competitive business sectors. Vitalect's fully integrated eLearning solution delivers the technology infrastructure and instructional design services that help companies train their customers, employees, sales channels and business partners. Vitalect's Techniq Learning **Content** Management System technologies encompass **content** development, authoring, management and certification tools in a web-based system with worldwide hosting, support and 24x7 maintenance services. Founded in 1997, Mountain View, Calif...

7/K/3 (Item 3 from file: 610)  
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### **class.com Partners to Provide Summer School Courses; Lincoln Northeast High School Students Succeed with Online Courses**

#### **Text:**

...first fully accredited virtual high school, and Lincoln Northeast High School, Lincoln, Nebraska, declared their summer school program a resounding success. class.com provided online **courses** and teacher support for the session.

Lincoln Northeast High School offered class.com **courses** this summer as a pilot program. Previously, students who wanted or needed to go to summer school had to travel across town to another school...

Discussing class.com **courses**, John Skretta, Coordinator at Lincoln Northeast High School, said, "This is a great program, I can recommend it without reservation. class.com **courses** deliver instruction online, allowing us to move outside the box of traditional classroom instruction. The online instruction

delivery addresses the situations where the classroom is not accommodating to students with different learning rates and abilities."

"The students selected the ways they would use the class.com **courses**," said Deb Venema, Computer Technician at Northeast High School, "and each one's needs were supported in a certain way. Students wanting to take enrichment classes during the school year, such as music or drama, took required **courses** this summer in order to free up time during the fall semester. There were also seniors who needed credit to graduate, or freshmen who needed credit to move along with their classmates to sophomore level classes who took advantage of the class.com **courses** in order to meet their goals. It's been a neat experience to watch students feel good about themselves and their work."

Students have a full year to finish the **course**, and this flexibility helps a lot of students. Some push to finish, others who give up in the regular classroom because they need more time than the others accept the responsibility and keep going on their own schedule.

Another factor noted was the ability to access class.com online **courses** for special needs, such as languages or accelerated classes that may not be taught locally.

"Every time I called class.com they were always there...  
...means to do it."

Lincoln Northeast High School had an almost 80% completion rate for the summer school program, with only one student dropping a **course**. A few students continue to work towards completion. "class.com is pleased to provide Northeast High School's summer school program with ongoing secondary teacher...

...the box," said John Blair, class.com President and CEO. "class.com remains involved and active in the ongoing design and delivery of high quality **courses** for students everywhere."

About class.com **Courses**

class.com represents the way of the future by providing **courses** without boundaries at anytime or anyplace. Using the Internet as a common and readily available delivery mechanism, **courses** can be **updated** on an on-going basis and students can learn at their own pace and direction. class.com offers core **courses** such as math, science, English and social studies in addition to business and career planning.

class.com **courses** provide a direct interaction **between** students and teachers. By using a standard web browser, students **access course material** that takes full advantage of advanced multimedia technologies. Students can log on and learn any time and anywhere there is a PC and an Internet connection.

Students view a combination of text, animated graphics, **audio** and video **materials**. A unique design and seamless navigational system encourages individualized discovery and learning. Downloading times are minimized by storing pictures, videos, and interactive graphics for off-line access. An online binder or notebook allows a student to take notes and store **course materials** in both text and multimedia formats for later reference.

About class.com, inc.

Founded in 1998 and headquartered in Lincoln, Nebraska with area offices in Atlanta and San Francisco, class.com is a privately held company delivering **online educational courses** over the **Internet** for high school students throughout the world. The **courses** are offered under the direction of a fully accredited, university-based independent study high school as part of a full diploma program or for transfer to a student's current high school for diploma credit. As the premier provider of **Internet-based online education**, class.com is committed to providing quality **education** over the **Internet** using the most innovative and advanced technology available. For more information, class.com may be reached at 888/482-5598 or 415/495-5009. The...

7/K/4 (Item 4 from file: 610)  
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## **class.com Releases New Data That Proves a Strong High School Market for Internet-Based Learning; Major Milestones Validate Need For class.com's Online Courses**

### **Text:**

...curriculum at the high school level. class.com has realized substantial growth as it meets the increasing demands of students and educators who want online **courses** this fall. class.com's Internet-based **courses** are designed to solve capacity problems, teacher shortages, scheduling conflicts and unique student needs.

class.com has achieved the following major milestones.  
...enrollments, class.com is gearing up for a record number of students to join the online student body and its biggest year yet.  
-- Available online **courses** have doubled from fall 1999, with over 45 online **courses** available for fall 2000.  
-- During the past 6 months, class.com has expanded its sales and educational support staff to accommodate the increased interest. Headquartered...

...Students from all 50 states and over 135 countries are part of the class.com online student body. Other students will be accessing class.com **courses** through educational portals, including LearninUSA.com, which offers bilingual services to more than 70 million Chinese students in 28 cities across The Peoples Republic of...

...growing out of the worldwide need to provide an equity learning experience to each and every student regardless of geographic location, time they want to **learn**, or school resources.  
**Online courses** offer the flexibility to scale as big or as small as the school or student requires.

"The response to the Western Pennsylvania Cyber Charter School...

...a waiting list."  
Schools may enroll students individually or elect to establish a locally maintained virtual high school. Both options utilize class.com's online **courses** developed and offered under the direction of class.com's fully

accredited Independent Study High School.

Schools select online **courses** for several reasons. The flexibility and ability to serve each student individually, regardless of the reason, provides a viable option for schools and students. Jeff Weir, principal of Felicity-Franklin High School in Felicity, Ohio, decided to utilize class.com **courses** with nine students who had attempted and failed classes during the previous school year. class.com worked with the high school to structure a program that was remedial in nature and paired each **course** with a learning skill component to address the reasons for failure in the first place.

"I certainly feel this project was a success," says Weir. "I watched kids that in the past we have struggled to motivate and kids we had trouble engaging in regular **course**-work be turned on by the class.com **courses**. class.com **courses** captured their minds and imaginations and guided them through a process of learning they could accept."

Other schools are choosing to establish their own online programs with a virtual high school environment, utilizing class.com **courses** and drawing on their own teaching staff for online student support.

"class.com was selected based on its unique interactive and student-centered **course** design along with the ability to partner with our teachers, not just act as a vendor, said Kenneth M. Bird, Ed.D, superintendent of the...

...high school is like no other high school campus in the school system. The doors do not close in the middle of the afternoon. Each **course** is a self-contained learning package providing all of the tools, resources, and instruction needed by each student. Students take the interactive **courses** under the direction of a certified teacher, endorsed in the appropriate subject area, who will provide individual feedback and counseling. The core teaching staff can...  
...many parts of the city, situated throughout the state, or scattered across the country.

"Through our responsible partnership with educators we are seeing that our **courses** increasingly are becoming a solution of choice to many of the problems facing schools today. Our goals are absolutely aligned with those of every teacher -- to give each student the highest quality education possible," says John Blair, president, and CEO, class.com, inc.

#### About class.com **Courses**

class.com represents the way of the future by providing **courses** without boundaries at anytime or anyplace. Using the Internet as a common and readily available delivery mechanism, **courses** can be **updated** on an on-going basis and delivered at the pace of the learner. class.com offers core **courses** such as math, science, English and social studies in addition to business and career planning. class.com **courses** provide a direct interaction **between** students and teachers. By using a standard web browser, students **access course material** that takes full advantage of advanced multimedia technologies. Students can log on and learn any time and anywhere there is a computer and an Internet connection.

Students view a combination of text, animated graphics, **audio** and video **materials**. A unique design and seamless navigational system encourages individualized discovery and learning. Downloading times are minimized by storing pictures, videos, and interactive graphics for off-line access. An online binder or notebook allows a student to take notes and store **course materials** in both text and multimedia formats for later reference.

#### About class.com, inc.

Founded in 1998 and headquartered in Lincoln, Nebraska with area offices in Atlanta and San Francisco, class.com is a privately held company delivering **online educational courses** over the **Internet** for high school students throughout the world. The **courses** are offered under the direction of a fully accredited, university-based independent study high school as part of a full

diploma program or for transfer to a student's current high school for diploma credit.

As the premier provider of **Internet**-based **online education**, class.com is committed to providing quality **education** over the **Internet** using the most innovative and advanced technology

7/K/5 (Item 5 from file: 610)

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### **class.com Online Courses Bridge the Digital Divide; Pennsylvania's Learning Institute for Employment and class.com Partner to Offer High School Diploma Programs**

#### **Text:**

...S  
first fully accredited virtual high school, and the Learning Institute for Employment, a licensed school, announced today a partnership to provide class.com online **courses** for out of school youth in Pittsburgh, Pennsylvania.

Under the terms of the agreement, class.com **courses** will be delivered over the Internet to students utilizing the services provided by the Learning Institute for Employment. Typically these are people who would otherwise...

...the  
opportunity to complete the work necessary for a high school diploma or have a chance at a successful and meaningful career. The Internet-based **courses** will cover a wide range of subjects including English, American History, and Business. All Internet-based **courses** are delivered under the direction of class.com's Independent Study High School (ISHS), fully accredited by the North Central Association Commission on Schools since 1978.

The **Learning** Institute for Employment founded their **Internet learning** program in 1994 with a federal grant and matching foundation funds. The program has proven itself time and time again, with 60% of those attending...

...state of the art technology and the Internet," said John Blair, president and CEO for class.com. "class.com will be offering over 45 online **courses** to these students. We are pleased to be working with The Learning Institute for Employment to bridge the digital divide for the benefit of an...

...today's technology and how to use it," states Dr. Wilma Carter, president, Three Rivers Employment Services Inc. "class.com bridges the technology gap with **online learning**, as well as providing solid academic **courses**. Our goals are to educate our students, upgrade their skills, enhance their employment prospects and assist them in finding a profession that can last a lifetime. Each time this happens, everyone succeeds."

#### About class.com **Courses**

class.com represents the way of the future by providing **courses** without boundaries at anytime or anyplace. Using the Internet as a common and readily available delivery mechanism, **courses** can be **updated** on an on-going basis and students can learn at their own pace and direction. class.com offers core **courses** such as math, science, English and social studies in addition to business and career planning.

class.com **courses** provide a direct interaction **between** students and teachers. By using a standard web browser, students **access course material** that takes full advantage of advanced multimedia technologies. Students can log on and learn any time and anywhere there is a PC and an Internet connection.

Students view a combination of text, animated graphics, **audio** and video **materials**. A unique design and seamless navigational system encourages individualized discovery and learning. Downloading times are minimized by storing pictures, videos, and interactive graphics for off-line access. An online binder or notebook allows a student to take notes and store **course materials** in both text and multimedia formats for later reference.

#### About Learning Institute for Employment

Three Rivers Employment Services, Inc. has developed a core program that supports the mission of providing the education necessary to enable skilled workers to form a permanent attachment to the workforce. class.com's Internet-based **courses** will augment the **audio**-video program currently in use, and will provide students with exposure to and experience using cutting-edge technology. This program is delivered through a non...  
...inc.

Founded in 1998 and headquartered in Lincoln, Nebraska with area offices in Atlanta and San Francisco, class.com is a privately held company delivering **online educational courses** over the **Internet** for high school students throughout the world. The **courses** are offered under the direction of a fully accredited, university-based independent study high school as part of a full diploma program or for transfer to a student's current high school for diploma credit. As the premier provider of **Internet**-based **online education**, class.com is committed to providing quality **education** over the **Internet** using the most innovative and advanced technology available. For more information, class.com may be reached at 888/482-5598 or 415/495-5009. The...

7/K/6 (Item 6 from file: 610)  
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**Text:**

...com, inc., the nation's first fully accredited virtual high school, and Westside Community Schools, Omaha, Nebraska, announced today a licensing agreement for Internet-based **courses** to be offered beginning in September 2000.

Westside will be utilizing class.com's virtual high school (vhs) with more than 45 online **courses**. class.com's vhs alleviates teacher shortages; provides high-quality **courses** from top teachers anywhere, anytime; provides learning

alternatives; and operates at one-half the cost of the traditional classroom.  
Online **courses** represent a tremendous opportunity for Westside schools to expand curriculum options and meet the unique needs of students. Implementing a vhs satisfies Westside's goal to best serve the community and eventually make **courses** available to anyone who wants to learn. Establishing a vhs will enable the schools in the district to share a resource that might not be...

...be difficult to provide as a result of teacher shortages or small demand.  
"class.com was selected based on its unique interactive and student-centered **course** design along with the ability to partner with our teachers, not just act as a vendor. class.com has designed their **courses** to be Internet-based from the very beginning," said Kenneth M. Bird, Ed.D., Superintendent of the Westside Community Schools in Omaha. "class.com's **courses** and partnering philosophy blend well with Westside's approach of looking at education differently for the future."

"class.com is committed to supporting Westside Community...

...class.com is pleased to form a true partnership with Westside by remaining involved and active in the ongoing design and delivery of high quality **courses**."

All **courses** are delivered under the direction of class.com's Independent Study High School (ISHS), fully accredited by the North Central Association Commission on Schools since 1978. class.com has the nation's only vhs product.

#### About class.com **Courses**

class.com represents the way of the future by providing **courses** without boundaries at anytime or anyplace. Using the Internet as a common and readily available delivery mechanism, **courses** can be **updated** on an on-going basis and students can learn at their own pace and direction. class.com offers core **courses** such as math, science, English and social studies in addition to business and career planning.

class.com **courses** provide a direct interaction **between**

students and teachers.

By using a standard web browser, students **access course material** that takes

full advantage of advanced multimedia technologies. Students can log on and

learn any time and anywhere there is a PC and an Internet connection.

Students view a combination of text, animated graphics, **audio** and video

**materials**. A unique design and seamless navigational system encourages

individualized discovery and learning. Downloading times are minimized by

storing pictures, videos, and interactive graphics for off-line access. An

online binder or notebook allows a student to take notes and store **course**

**materials** in both text and multimedia formats for later reference.

#### About Westside Community Schools

Westside Community Schools, also known as District 66, is an award winning

...

...inc.

Founded in 1998 and headquartered in Lincoln, Nebraska with area offices in

Atlanta and San Francisco, class.com is a privately held company delivering

**online educational courses** over the **Internet**

for high school students

throughout the world. The **courses** are offered under the direction of a fully

accredited, university-based independent study high school as part of a full

diploma program or for transfer to a student's current high school for diploma

credit.

As the premier provider of **Internet**-based **online**

**education**, class.com is

committed to providing quality **education** over the **Internet**

using the most

innovative and advanced technology available. For more information,

class.com

may be reached at 888-482-5598 or 415-495-5009. The...

7/K/7 (Item 7 from file: 610)

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**class.com Aides in Summer School Success; Felicity-Franklin High School Students**

## Achieve Summer School Success With Online Courses

### Text:

...S  
first fully accredited virtual high school, and Felicity-Franklin High School  
have declared their summer school program a complete success. class.com  
provided online **courses** and teacher support for the school located  
in  
Felicity, Ohio.  
For the pilot program, Felicity-Franklin selected a group of nine  
students  
who  
had attempted...

...classes during the previous school year. class.com  
worked with the high school to structure a program that was remedial in  
nature  
and paired each **course** with a learning skills component to address  
the reasons  
for failure in the first place.  
The students were first trained in using the technology and mastering  
the  
concepts of **Internet-based learning**. Working at their own  
pace, the students  
received online support from class.com teachers. A Felicity-Franklin  
teacher,  
Ruth Allen, was onsite to make sure...

"class.com **courses** gave our students the ability to structure their  
own  
learning timetable," said Allen. "Students progressed through the  
**courses** at  
their own pace, received immediate test results and asked questions of  
the  
class.com online teachers when they needed help. I believe that the  
ability  
to  
control their own progress through a **course** was one of the important  
factors  
to the success of this summer school project."

"I certainly feel this project was a success," said Jeff Weir,  
Felicity-Franklin High School principal. "I watched kids that in the  
past  
we  
have struggled to motivate and kids we had trouble engaging in regular  
**course-work** be turned on by the class.com **courses**. class.com  
**courses** captured  
their minds and imaginations and guided them through a process of  
learning  
they could accept. I expect to use class.com **courses** in greater  
numbers during  
the next school year."

"class.com is pleased to be involved in a summer school program offering students a second chance...  
...for class.com. "The educators of Felicity-Franklin High School are to be applauded for having the courage to attempt something new."

#### About class.com **Courses**

class.com represents the way of the future by providing **courses** without boundaries at anytime or anyplace. Using the Internet as a common and readily available delivery mechanism, **courses** can be **updated** on an on-going basis and delivered at the pace of the learner. class.com offers core **courses** such as math, science, English and social studies in addition to business and career planning.

class.com **courses** provide a direct interaction **between** students and teachers. By using a standard web browser, students **access course material** that takes full advantage of advanced multimedia technologies. Students can log on and learn any time and anywhere there is a PC and an Internet connection. Students view a combination of text, animated graphics, **audio** and video **materials**. A unique design and seamless navigational system encourages individualized discovery and learning. Downloading times are minimized by storing pictures, videos, and interactive graphics for off-line access. An online binder or notebook allows a student to take notes and store **course materials** in both text and multimedia formats for later reference.

#### About Felicity-Franklin High School

Felicity-Franklin High School is located in Felicity, a small rural...  
...inc.

Founded in 1998 and headquartered in Lincoln, Neb. with area offices in Atlanta and San Francisco, class.com is a privately held company delivering **online educational courses** over the **Internet** for high school students throughout the world. The **courses** are offered under the direction of a fully accredited, university-based independent study high school as part of a full diploma program or for transfer to a student's current high school for

diploma  
credit.  
As the premier provider of **Internet**-based **online**  
**education**, class.com is  
committed to providing quality **education** over the **Internet**  
using the most  
innovative and advanced technology available. For more information,  
class.com  
may be reached at 888/482-5598 or 415/495-5009. The...

7/K/8 (Item 8 from file: 610)  
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**Text:**

...nation's first fully accredited virtual high  
school, and  
the Western Pennsylvania Cyber Charter School (WPCCS) today announced a  
partnership to provide class.com online **courses** for Pennsylvania  
high school  
students. Located in Midland, Pa., WPCCS is the only K-12 online school  
in  
the  
state.  
Under the terms of the agreement, class.com **courses** will be  
available to  
students utilizing the services provided by WPCCS. Until recently, the  
only  
option for this Western Pennsylvania community was for students to...

...enrolled for this coming fall  
and have another 100 on a waiting list."

"We chose the virtual high school environment in order to offer quality  
**courses** within a widely accessible environment," continued Dr.  
Trombetta. "We  
are confident that this approach will allow students to develop the  
knowledge  
and skills to achieve...  
...a program designed for faster and more  
effective preparation than a traditional program.

Under the agreement class.com will be offering over 45 Internet-based  
**courses**  
covering a wide range of subjects such as English, American history,  
physics  
and business. All **courses** are under the direction of class.com's  
Independent  
Study High School (ISHS), fully accredited by the North Central  
Association  
Commission on Schools since 1978.

## About class.com **Courses**

class.com represents the way of the future by providing **courses** without boundaries at any time or any place. Using the Internet as a common and readily available delivery mechanism, **courses** can be **updated** on an ongoing basis and delivered at the pace of the learner. class.com offers core **courses** such as math, science, English and social studies in addition to business and career planning. class.com **courses** provide a direct interaction **between** students and teachers. By using a standard Web browser, students **access course material** that takes full advantage of advanced multimedia technologies. Students can log on and learn any time and anywhere there is a PC and an Internet connection.

Students view a combination of text, animated graphics, **audio** and video **materials**. A unique design and seamless navigational system encourages individualized discovery and learning. Downloading times are minimized by storing pictures, videos, and interactive graphics for off-line access. An online binder or notebook allows a student to take notes and store **course materials** in both text and multimedia formats for later reference.

## About the Western Pennsylvania Cyber Charter School

Located in Midland, Pa., the Western Pennsylvania Cyber Charter...  
...inc.

Founded in 1998 and headquartered in Lincoln, Neb., with area offices in Atlanta and San Francisco, class.com is a privately held company delivering **online educational courses** over the **Internet** for high school students throughout the world. The **courses** are offered under the direction of a fully accredited, university-based independent study high school as part of a full diploma program or for transfer to a student's current high school for diploma credit. As the premier provider of **Internet-based online education**, class.com is committed to providing quality **education** over the **Internet** using the most

innovative and advanced technology available. For more information, class.com may be reached at 888/482-5598 or 415/495-5009. The...

7/K/9 (Item 9 from file: 610)  
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### **class.com Appoints Dr. Suzanne Logan as Director of Academic Affairs; Senior Education Executive to Provide Distance Learning Expertise to Online Education Market Leader**

#### **Text:**

class.com, inc. announced today that Suzanne Logan has been named Director of Academic Affairs. class.com provides Internet-based online **courses** for high school students, as the nation's first fully accredited virtual high school.

Logan was most recently Interim Vice-Provost, Outreach and Extended Studies, for Texas Tech University. In this position, she had executive responsibility for twelve operations units including **distance learning**, KTXT public television, KOHM radio, the Texas Tech University Independent School District and curriculum development and production. Additionally, Logan directed the university's **distance learning** programs for the State of Texas beginning in 1984. Under her guidance, she developed a program that served over 70,000 enrollments for the past...

...has attained worldwide recognition for innovation and quality in education. She has been a featured speaker at national and international conferences on the topic of **distance learning**, and regularly serves as a peer reviewer for regional accrediting agencies.

"Suzanne is a recognized **online learning** expert. Her knowledge of individual learning styles is tailor made for class.com now and in the future," said John Blair, President and Chief Executive...

...and lead

education into the future. We are extremely pleased to welcome her as a member of our executive team."

"class.com is leading the **educational** market by successfully applying **online** technology with academic needs. By responsibly blending business with the highest quality education offerings, the results are positive for everyone," said Logan. "I am extremely...

...Education Administration, with a doctorate from Texas Tech University in Higher Education Administration. Dr. Logan is a prolific, award winning author in the areas of **education** on-site, independent study and **distance** and **online learning**. Logan also has in-depth knowledge and experience in the areas of educating teachers, and serving under-prepared, low-, average- and high-ability students.

#### About class.com **Courses**

class.com represents the way of the future by providing **courses** without boundaries at anytime or anyplace. Using the Internet as a common and readily available delivery mechanism, **courses** can be **updated** on an on-going basis and students are able to learn at their own pace. class.com offers core **courses** such as math, science, English and social studies in addition to business and career planning.

class.com **courses** provide a direct interaction **between** students and teachers. By using a standard web browser, students **access course material** that takes full advantage of advanced multimedia technologies. Students can log on and learn anytime and anywhere there is a PC and an Internet connection.

Students view a combination of text, animated graphics, **audio** and video **materials**. A unique design and seamless navigational system encourages individualized discovery and learning. Downloading times are minimized by storing pictures, videos and interactive graphics for off-line access. An online binder or notebook allows a student to take notes and store **course**

**materials** in both text and multimedia formats for later reference.

About class.com, inc.

Founded in 1998 and headquartered in Lincoln, Nebraska with area offices in Atlanta and San Francisco, class.com is a privately held company delivering **online educational courses** over the **Internet** for high school students throughout the world. The **courses** are offered under the direction of a fully accredited, university-based independent study high school as part of a full diploma program or for transfer to a student's current high school for diploma credit. As the premier provider of **Internet-based online education**, class.com is committed to providing quality **education** over the **Internet** using the most innovative and advanced technology available. For more information, class.com may be reached at 415-495-5009 or by visiting [www.class.com](http://www.class.com).

7/K/10 (Item 10 from file: 610)  
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## **class.com Releases New Online Courses for High School Students; Expanded Course Offerings Support Fully Accredited High School Diploma**

### **Text:**

class.com, inc., a provider of **Internet-based online education** for high school students, announced today that nine new online high school **courses** will be available for student enrollments this fall.

The new online **courses** meet standard diploma requirements and extend the class.com online offering to 47 total **courses**. Like the 38 online **courses** currently available, the additional **courses** will be available 24 hours a day, 365 days a year for the convenience of students throughout the world. "class.com is focused on expanding our curriculum to offer all of the **courses** necessary for a student to obtain a high school diploma from our fully accredited Independent Study High School delivered completely by the

Internet," said John...

...students of all ages who want to enhance their high school programs or earn a complete high school diploma according to their own schedule."

The **courses** scheduled for the fall release include:

- American Government: Theories, Policies and Politics. Analysis of the American federal system of government as outlined by the Constitution...

...forces of social change.

- World Cultures. A study of the world's cultures through five themes: location, place, interaction, movement, and regions.

About class.com **Courses**

class.com represents the way of the future by providing **courses** without boundaries at anytime or anyplace. Using the Internet as a common and readily available delivery mechanism, **courses** can be **updated** on an on-going basis and delivered at the pace of the learner. class.com offers core **courses** such as math, science, English and social studies in addition to business and career planning.

class.com **courses** provide a direct interaction **between** students and teachers. By using a standard web browser, students **access course material** that takes full advantage of advanced multimedia technologies. Students can log on and learn any time and anywhere there is a PC and an Internet connection.

Students view a combination of text, animated graphics, **audio** and video **materials**. A unique design and seamless navigational system encourages individualized discovery and learning. Downloading times are minimized by storing pictures, videos, and interactive graphics for off-line access. An online binder or notebook allows a student to take notes and store **course materials** in both text and multimedia formats for later reference.

About class.com, inc.

Founded in 1998 and headquartered in Lincoln, Nebraska with area offices in

Atlanta and San Francisco, class.com is a privately held company delivering **online educational courses** over the **Internet** for high school students throughout the world. The **courses** are offered under the direction of a fully accredited, university-based independent study high school as part of a full diploma program or for transfer to a student's current high school for diploma credit. As the premier provider of **Internet**-based **online education**, class.com is committed to providing quality **education** over the **Internet** using the most innovative and advanced technology available. For more information, class.com may be reached at 415/495-5009 or by visiting [www.class.com](http://www.class.com).

7/K/11 (Item 11 from file: 610)  
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## **class.com Offers Online Courses to Chinese Students**

### **Text:**

Internet-Based **Course** Provider Partners With  
LearninUSA.com  
to Establish Learning Services for Students Within  
The People's Republic of China

class.com, inc., a provider of **Internet**-based **online education**, announced today a partnership agreement with LearninUSA.com, an education portal offering bilingual services to more than 70 million Chinese students in 28 cities across...

The partnership will provide access via the Internet to high school level **courses** from class.com in English language, composition, and American history and culture. **Courses** will be marketed to Chinese students who want to improve their language skills before enrolling in U.S. colleges and universities as well as young professionals throughout China.

"A global **education** is truly obtainable with **Internet**-based **learning**," stated John Blair, president and CEO for class.com. "class.com is excited to

expand  
our marketplace by partnering with LearninUSA.com and offering our  
interactive  
**courses** to students throughout the People's Republic of China."

"The partnership of LearninUSA.com and class.com provides Chinese  
students  
with quality **online learning** options," stated Ying Wang,  
president of  
LearninUSA.com. "The **courses** offered by class.com provide a cost  
effective  
opportunity that is suitable for a diverse range of students."  
"The interactive **course** design allows complex **course**  
**material** to be learned in  
a logical and progressive manner," Ms. Wang continued. "College  
students,  
professionals, and high school students will all be able to benefit  
from  
the  
flexibility of online **courses** while improving their English skills  
and  
learning more about American culture."

#### About class.com **Courses**

class.com provides **courses** without boundaries anytime or anyplace.  
With  
**courses** available 24 hours a day, 7 days a week and 365 days a year,  
students  
access their individual coursework wherever a PC and Internet  
connection is  
available and whenever they want to log in and learn.

All **courses** are designed for a standard web browser and allow direct  
interaction **between** students and teachers. Students **access**  
**course content** that  
takes full advantage of advanced multimedia technologies, including a  
combination of text, animated graphics, **audio** and video  
**materials**. By using  
the Internet as a common and readily available delivery mechanism,  
**courses** can  
be **updated** on an on-going basis and delivered at the pace of the  
learner.

A unique design and seamless navigational system encourages  
individualized  
discovery and learning...

...minimized by storing pictures,  
videos, and interactive graphics for off-line access. An online binder  
or  
notebook allows a student to take notes and store **course**  
**materials** in both  
text and multimedia formats for later reference.

#### About LearninUSA.com

LearninUSA.com provides a full range of bilingual services to more than 70

million Chinese students in China and the USA who are interested in pursuing a

U.S. **education**. Services range from higher **education**, **distance learning** and

high school programs, to executive training and career development.

LearninUSA.com is the **online** division of **Learn** In USA, LLC, a

U.S. corporation

headquartered in Washington, D.C. Among its investors are Prometric (formerly

Sylvan Prometric) and Cathay Investment Fund. LearninUSA...

...861-8053 or by

sending a request to [info@learninusa.com](mailto:info@learninusa.com). Information may also be obtained

by

visiting [www.learninusa.com](http://www.learninusa.com). A Chinese version with **content** targeted for use

in China is available at [www.learninusa.com.cn](http://www.learninusa.com.cn).

About class.com, inc.

Founded in 1998 and headquartered in Lincoln, Neb. with area offices in Atlanta and San Francisco, class.com is a privately held company delivering

**Internet**-based **online educational courses** for

high school students throughout

the world. The **courses** are offered under the direction of a fully accredited,

university-based independent study high school as part of a full diploma

program or for transfer to a student's current high school for diploma credit.

As the premier provider of **Internet**-based **online education**, class.com is

committed to providing quality **education** over the **Internet** using the most

innovative and advanced technology available. For more information, class.com

may be reached at 402/441-3050 or by visiting [www.class.com](http://www.class.com).

7/K/12 (Item 12 from file: 610)

DIALOG(R)File 610: Business Wire

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**class.com Selected by Windermere Prep School; The American Schools OnLine Launches a Complete Online Learning Curriculum for Fall 2000**

**Text:**

class.com, inc. a provider of **Internet**-based **online education** for high school students, announced today that The American Schools OnLine, Inc., a company of The American Schools Corporation, will offer the class.com curriculum...

Students will use laptop computers to access the class.com **online courses** to **learn** anytime, anywhere. The American Schools Corporation views laptops as personal learning tools for each of their students.

"We are continually expanding the possibilities for learning," states Carolyn Cappleman, Headmaster, Windermere Prep School. "Using laptops to access class.com **courses** developed to fully exploit the multimedia capabilities of the Internet will give our students a jump on learning and working in the twenty-first century."

"Our Windermere Preparatory School curriculum will be enriched by our student's ability to access the class.com **courses** while our teachers take on the role of learning coaches," states Dr. Suzanne Miller, President of The American Schools OnLine, Inc. "Our agreement with class...

...school curriculum, we are able to offer our students the chance to expand their learning options and acquire the needed skills for a lifetime of **learning**."

"American Schools **OnLine** is building an exceptional **learning** platform for students to access the web for learning," said John Blair, President and CEO for class.com. "class.com is excited to be part of this effort and to provide a well-rounded curriculum that will be available 24 hours a day, 365 days a year."

#### About class.com **Courses**

class.com represents the way of the future by providing **courses** without boundaries at anytime or anyplace. Using the Internet as a common and readily available delivery mechanism, **courses** can be **updated** on an on-going basis and delivered at the pace of the learner. class.com offers core **courses** such as math, science, English and social studies in addition to business and career planning.

class.com **courses** provide a direct interaction **between** students and teachers. By using a standard web browser, students **access course material** that takes full advantage of advanced multimedia technologies. Students can log on and learn any time and anywhere there is a PC and an Internet connection.

Students view a combination of text, animated graphics, **audio** and video **materials**. A unique design and seamless navigational system encourages individualized discovery and learning. Downloading times are minimized by storing pictures, videos, and interactive graphics for off-line access. An online binder or notebook allows a student to take notes and store **course materials** in both text and multimedia formats for later reference.

About The American Schools OnLine, Inc.

The American Schools OnLine, a company of The American Schools...  
...inc.

Founded in 1998 and headquartered in Lincoln, Nebraska with area offices in Atlanta and San Francisco, class.com is a privately held company delivering **online educational courses** over the **Internet** for high school students throughout the world. The **courses** are offered under the direction of a fully accredited, university-based independent study high school as part of a full diploma program or for transfer to a student's current high school for diploma credit. As the premier provider of **Internet-based online education**, class.com is committed to providing quality **education** over the **Internet** using the most innovative and advanced technology available. For more information, class.com may be reached at 402/441-3050 or by sending a request...

7/K/13 (Item 13 from file: 610)  
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**Text:**

...together into  
virtual teams to deliver timely information at a lower cost.

--Enterprise Software Deployments--Improving end-user proficiency with  
enterprise software through scenario-based **learning** delivered  
**online**.

Using Centra 99, organizations can accelerate the adoption of new  
applications and subsequent updates.

--General Training Programs--Providing training on organizational  
assessments, system integration, and Web-**course** development using  
Centra 99.

According to Eric Busby, Director of Enterprise Learning Solutions at  
QuickStart, "After a full evaluation of existing Internet collaboration  
offerings, we...

...hoc, presentation style or highly interactive, for  
internal or external audiences. In addition to extensive support for  
live events, Centra 99 also enables self-paced **viewing** of recorded  
event **content**, conversations, and user interactions **after** the  
session  
has ended.

In Centra 99, Centra SYMPOSIUM includes all the patented, award-winning  
functionality that Centra is known for in a single, easy-to-use  
interface. Capabilities include integrated Web-based **audio**  
conferencing  
allowing participants to speak to one another in real-time; four modes  
of live application sharing; interactive Body Language(TM) functions  
for instant polling, surveys and feedback; Web Safari(TM); whiteboard  
and text chat; breakout rooms and labs; just-in-time **content**  
**updates**;  
and HTTP tunneling and IP multicast options.

With the addition of the all-new, no-install Centra CONFERENCE Web  
client to Centra 99, Centra further...

7/K/14 (Item 14 from file: 610)  
DIALOG(R)File 610: Business Wire  
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**Text:**

...teleconferencing and component Web technologies are now supported in  
a  
single, easy-to-use software system that includes centralized log-in,  
administration, reporting, security, and **content** management.

According to Matt Cain, Vice President of Workgroup Computing Strategies at the META Group, "Organizations must integrate traditional workgroup technologies with real-time capabilities...

...ad hoc, presentation style or highly interactive, for internal or external audiences. In addition to extensive support for live events, Centra 99 enables self-paced **viewing** of recorded event **content**, conversations, and user interactions **after** the session has ended.

In Centra 99, Centra SYMPOSIUM includes all the patented, award-winning functionality that Centra is known for in a single, easy-to-use interface. Capabilities include integrated, Web-based **audio** conferencing allowing participants to speak to one another in real-time; four modes of live application sharing; interactive Body Language (tm) functions for instant polling, surveys and feedback; Web Safari (tm); whiteboard and text chat; breakout rooms and labs; just-in-time **content updates**; and HTTP tunneling and IP multicast options.

With the addition of the all-new, no-install Centra CONFERENCE Web client to Centra 99, Centra further...

...CONFERENCE is approximately 25% of the size of competitive products while delivering superior functionality. Centra CONFERENCE can be used in conjunction with any standard Web **audio** broadcast tool or existing **audio** conference system for greater interactivity.

"Business partnership programs are strategic to our success," said Michael Bunch, Director of **Online Learning** Solutions at Wall Data, a leading enterprise software and services company. "Centra 99 allows us to provide a full range of live collaboration to our...

...XML, IMS, ODBC/JDBC, and LDAP to allow easy integration with Microsoft, Oracle and other database management systems.

--Integrates easily with all leading self-paced **content** delivery and learning management systems.

--Centralized management of a large number of distributed servers, users, **content**, and events, through a browser interface in an enterprise-scalable implementation.

--Smart Client (tm) technology improves deployability by insulating Centra 99 from browser changes and provides easy upgrade and **content** management ensuring that each time an end user attends a Centra event, they have the correct software and **content** required for that event. Changing the Way Organizations Sell, Service, Train and Meet Forever

Centra 99 provides a foundation for configurable solutions designed to expedite...

...Internet. Each software solution is enhanced by Centra's proven Rapid Application Methodology and event templates that provide step-by-step guidelines, best practices, and **content** format recommendations for effective online events. Centra 99 solutions include:

--Centra 99 for Sales - Enables 1 :1 and team sales coaching, product updates, virtual sales...

7/K/15 (Item 1 from file: 15)

DIALOG(R)File 15: ABI/Inform(R)

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## **An asynchronous augmentation to traditional course delivery**

### **Abstract:**

Asynchronous augmentation facilitates distributed learning, which relies heavily on technology and self-learning. This article reports the results of delivering a real estate principles **course** using an asynchronous **course** delivery format. It highlights one of many ways to enhance learning using technology, and it provides information concerning how students accept and use unique learning tools. The data reveal modes of access to **course materials**, how learning resources were used and valued by students, how this **course** compared to traditionally delivered **courses** on several dimensions, and open-ended student comments. The goals established at the outset of **course** development are compared with outcomes reported by students over a three semester trial, and informed conjectures are provided regarding the costs and benefits of developing the **course**. (PUBLICATION ABSTRACT)

### **Text:**

...Abstract: Asynchronous augmentation facilitates distributed learning, which relies heavily on technology and self-learning. This article reports the results of delivering a real estate principles **course** using an asynchronous **course** delivery format. It highlights one of many ways to enhance learning using technology, and it provides information concerning how students accept and use unique learning tools. The data reveal modes of access to **course materials**, how learning resources were used and valued by students, how this **course** compared to traditionally delivered **courses** on several dimensions, and open-ended student comments. The goals established at the outset of **course** development are compared with outcomes reported by students over a three semester trial, and informed conjectures are provided regarding the costs and benefits of developing the **course**.

Asynchronous augmentation to traditional **course** delivery refers to

instruction that is accessible at times outside scheduled class meetings.  
It is an intervention designed and initiated by the instructor but used...

...students the opportunity to engage in activities in both real-time and remote settings. It blends various technologies to allow for both campus-based and **distance education** (Reid, 1999).

Distributed **learning** has two essential components: a heavy reliance on technology and self-learning (Volery, 2001). Technology, in today's education environment, usually refers to the use...

...and access information and present it in novel and interesting ways. Technology also provides students with access to learning resources, which require different methods of **learning**. Such computer-assisted, **web-based** resources might include visuals, well-organized print, vicarious and virtual experiences, and applications to real-life situations. Used to its potential, it facilitates student learning...

...focuses on learning by the individual student rather than mass lecturing by the instructor.

This article reports the results of delivering a real estate principles **course** using an asynchronous **course** delivery format. It highlights one of many ways to enhance learning using technology, and it provides information concerning how students accept and use unique and otherwise unfamiliar learning tools.

#### Real Estate Principles **Course**

Real Estate Principles is taught at the junior level (RE 305) at Washington State University (WSU), and serves as an entree into the real estate degree program as well as a general interest **course** for the broader student population. Prior to asynchronous augmentation, the **course** was offered in a "traditional" survey **course** format spanning a fifteen-week semester. It consisted of three fifty-minute periods of lecture per week (or two seventy-five-minute periods if taught...  
...to students at an on-campus copy center, and were popular as a note-taking aid. Examinations were designed to assess student achievement as the **course** progressed through five sections of the textbook,<sup>1</sup> including real estate markets, the legal framework of real estate, real estate services, real estate transactions and real estate investment.

To devise a means of delivering the real estate principles **course** to off-site and branch campus students, the College of Business and Economics and one branch campus initiated and funded creation of a stand-alone, web-based real estate principles lecture series. The **course** developer chose to create a college-server-resident program relying on

Microsoft Agent(R) software. This choice was made for several reasons, including cost (free license to colleges and universities), ease of integration with PowerPoint, integrated text-to-speech engine (Lernout & Hauspie(R)), and ease of **updating** and modification. Over the **course** of one and a half semesters, the PowerPoint slides already in use in the traditional class format were modified, edited and integrated into a series of animated, server-resident lectures covering the RE 305 curricular **material** ready for use in a **distance education** setting. Exhibit 1 illustrates the animated character discussing a lesson as seen on a typical monitor.

Initially, the newly developed **course** was intended for use as a stand-alone, asynchronous, web-resident product designed to enable a **distance education** effort. However, having developed a free-standing, web resident **course**, the **course** developer decided to experiment with integration of the new electronic **materials** into the live, on-campus classroom. One such asynchronously augmented section of RE 305 was offered in the summer of 2000, fall 2000 and in spring 2001. The summer **course** was delivered over a six-week time period, whereas the fall and spring semester **courses** were delivered over an eleven-week period. These time periods are compressed, compared with the fifteen-week period typical of a traditional semester at WSU.

Students could elect to register in the asynchronously augmented compressed time period **course** or in one of two additional sections taught over fifteen weeks in a traditional format. Students enrolled in the asynchronously augmented sections of RE 305 did not attend live lectures.

Instead, they "attended" lectures independently and asynchronously by watching and **listening** to the appropriate animated lecture at a computer accessing the **course material** either from a CD or the Internet.<sup>2</sup> The animated lectures were supplemented by the textbook, covering the same **material** that had previously been presented in the traditional classroom setting. Additionally, students were assigned to and

required to attend one live session per week, which functioned as a **tutorial** or seminar, depending on the **material** being addressed. (An instructor can divide a large class into two or three smaller groups and meet with each group once a week-allowing greater personal contact with students.) A **tutorial** format was used in the live sessions involving financial problem solving practice and reviewing less familiar topics (e.g., legal descriptions). A seminar format was...

...of the broad amount of subject matter found in the textbook along with discussion of outside readings selected to add depth and realism. Invariably, some **material** was omitted due to time constraints. Use of animated lectures freed up live contact time to explore topical outside readings<sup>4</sup> and concentrate on the most...

...students to "attend" class at their convenience. Furthermore, there was no longer a need for borrowed notes because students had direct access to the source **material** at all times.

3. With a traditional **course** delivery format, international students were afforded only one opportunity to hear an oral presentation of unfamiliar **material**, such as real estate principles, in a language foreign to them. The new **course** format allowed students to "attend" lectures or subsets of lectures as many times as they desired. Additionally, the spoken text appeared in written form on the computer screen as it was being recited by the animated character ("Merlin"), allowing for both visual and **audio** reception of the lecture **content**.

#### Data and Analysis

Data were derived from student questionnaires administered at or near the end of each asynchronously augmented **course**. The questionnaire was designed to assess access to **course materials**, how the various learning resources were used by the students, comparison with traditional **course** delivery, student recommendations and other information not relevant here.

#### Access to Course Materials

Students had **two** ways to **access** the animated **lectures**, via the Internet or directly from a CD-ROM (see Exhibit 2). Fifty-eight point seven percent (58.7%) viewed the lectures exclusively from the...

...may also be a byproduct of additional fees WSU students must pay in order to obtain an on-campus computer account.

#### Exhibit 2

#### Access to Course Materials

Supplemental readings were also accessed via the Internet using search engines subscribed to by the University library. Reading method preferences varied, with most of the...

...reading online (19.4%) and sending them to themselves by email for later reading (8.1%). Students rated ease of access to the supplemental **material** to be: easy (40.6%), somewhat difficult (53.1%) or difficult (6.3%). Discussions with students indicating difficulty with access to the online readings revealed...

...read each assignment at least once, 18.5% read each assignment more than once. However, 21.5% read less than all of the assigned text **material**, and one student reported having not read any of the assigned readings from the textbook. One student also reported that the textbook did nothing to...

...with 75.4% of them reporting that they viewed all of the components of the lectures at least once. Interestingly, and in keeping with the **course** design goal of an ability to "attend" lectures or ...6% of the students reported viewing some parts of the animated lectures more than once. Twenty-six students (40%) were intense users, viewing each full **lecture** more than once and also **viewing** many of the smaller subsets separately. **Two** students (3.1%) reported never **viewing** the **lectures** (the equivalent of never going to class), and 14 (21.6%) were occasional viewers. About 80% of the students reported using the shorter lecture subsets to review difficult **material** with 37.3% reporting that they viewed the subsets covering **material** they found to be difficult more than once.

As mentioned earlier, the asynchronous augmentation format allowed the addition of, and live discussions of, supplemental readings to the **course materials**. Forty-seven point seven percent (47.7%) of the students indicated that they had read all thirty-seven of the supplemental readings, and an additional...

...read most of them. This information supports at least partial achievement of the goal of using supplemental readings to add depth and realism to the **course**.

The website and CD contained three learning resources in addition to the animated lectures-PowerPoint slides identical to the information contained in the animation frames...

...preference was greater than reported, since a number of students did not have PowerPoint software installed on the computer primarily used for viewing the learning **material**. Based on this early feedback, hard copies of the PowerPoint slides were made available at the copy center, and 31 % of the students reported they had purchased them.

#### Comparison with Traditional **Course** Delivery

Students were asked to compare the amount of time and effort spent on this **course** with **courses** using conventional delivery systems (see Exhibit 4). More than 90% of the students enrolled in the asynchronously augmented sections said that they spent either the same amount of time and effort (66.2%) or more time and effort (26.2%) on this **course** than on the typical conventionally delivered **course**. Five students (7.7%) said they spent less time and effort than they would have spent on a traditional **course**. In addition, 69.2% said this format was more interesting than the traditional format. Sixteen point nine percent (16.9%) said it was as interesting as a traditional **course** format, and 13.8% said it was less interesting.

#### Exhibit 4

##### Comparison with Traditional **Course** Delivery

To the extent that level of interest signals engagement, students appear to have been more engaged than they may have otherwise been. Additional support for this conjecture comes from the fact that 67.2% of the students said that the distributed learning format of this **course** was more conducive to learning. However, 10.9% found it less conducive to learning, suggesting that the format is not for everyone. Importantly, more than three-fourths of the students (76.9%) said that the way the **course** was delivered positively impacted their desire to learn more about the real estate profession.

Eighty percent of the students who took the **course** said they would recommend an asynchronously delivered **course** to a friend, and their reasons for doing so stemmed mostly from aspects of the delivery format—32.4% thought that the online resources made it easy to study, 23.4% simply liked the asynchronous format and 18% liked the live **tutorials**. Another 24.3% said they would recommend a **course** delivered asynchronously because they learned a lot. Two students said they would not recommend the **course** because it took too much time.

##### Student Recommendations and Comments

Three groups of students enrolled in the asynchronously delivered real estate principles **course**, each in a different semester. Eleven students took the **course** during a six-week summer session, thirty-nine enrolled the following fall and seventeen in the spring. The fall and spring sessions each ran for the first eleven weeks of a conventional fifteen-week semester. In an attempt to determine student perceptions of the optimal delivery time for such a **course**, all students were asked to compare the compressed schedule that they experienced to four options—a six-week summer-length schedule, ten weeks, twelve weeks or fifteen weeks. Most students suggested that the **course** was best suited for shorter rather than normal academic semester delivery. About 25% believed that the asynchronous format lent itself to a six-week session, another 25% thought that ten weeks during a regular semester would work well, 40% liked the notion of extending the **course** to a twelve-week period. Only 11 % felt that the **course** should be delivered using the full fifteen-week semester.

Student comments are divided below into favorable and unfavorable, from the student's perspective (e.g...

...once

- \* More carefully guided, less mystery about work expectations and required work
- \* Reviewed more of assigned readings than usually do
- \* More prepared for live lectures (**tutorials**)
- \* Computer enhances (the **course**)
- \* More effective use of my time
- \* Able to take notes at computer, which helped with organizing study routine
- \* It was easier to stay on top...Read during week then cram on Saturday and Sunday
- \* Only studied night before tests
- \* Had to do things in certain order, i.e., read text, **listened** to Merlin, then read articles
- \* Had to watch and know stuff from animated lectures
- \* Took more time because learned more in less time
- \* Had to...

...to access additional learning resources such as notes and answers to exercises, and more productive study routines. Unfavorable comments included the extent to which the **course** required more self discipline (more reading, doing things in a certain order and studying longer). Others commented on being able to study less and being...

...entirety of responses to the questionnaire, those who studied less appear to have been a small minority.

#### Addressing the Initial Concerns

Original impetus for the **course** design efforts revolved around three major concerns-the inability to adequately cover **course content**, the sporadic class attendance of students, the disadvantage placed on certain students due to limited exposure to **course materials**-and the desire to provide **course** access to off-site students.

For the most part, the goals set forth at the start of the project were achieved. The branch campus received a CD containing all of the elements of a virtual real estate principles **course** that could become server resident and was easy to update and maintain (to the authors' knowledge the virtual **course** was never implemented by the branch campus). The distributed learning augmentation to the live lectures achieved the goal of adding depth and realism to the **course** without sacrificing any

textbook **material** because of the addition of an extensive outside reading list. It also allowed students to "attend" lectures at their convenience and to "attend" lectures or...

...were available or where speaker noise would have disturbed other students (the headphones students have for CD players work perfectly). The

ability to make the **course** entirely CD resident was an important innovation, allowing the lectures to be viewed almost anywhere and overcoming problems associated with slow modem connections to the Internet.

The importance of this aspect of **course** delivery is underscored by the fact that the majority of the students used the CD exclusively as a means of watching the lectures. Library subscriptions to full text news articles and journals enabled the **course** to expand its horizons and produce the side benefit of teaching students how to access current and topical information by using library resources.

Student feedback was a catalyst for several ideas for **course** refinement. First, it became apparent early-on that student ownership of PowerPoint software was much less prevalent than ownership of other Microsoft products such as...

...of PowerPoint slides were made prior to the start of each semester as a consequence of this. In addition, students should be notified that the **course** requires a substantial time commitment, even though they meet in a live classroom only once per week. They should also be told to attempt to...

...be a fair tradeoff here) and an inability to view the lectures on Apple Computer hardware.

#### Final Thoughts on the Costs and Benefits of Asynchronous **Course** Augmentation

Creation and implementation of a distributed learning **course** is a time-consuming enterprise, especially in terms of sunk cost prior to the first offering. The author of this **course** was given **course** release time in which to develop the **course**. The PowerPoint slides were already in existence for the most part (this represents an added cost if a totally new **course** were to be developed). Even so, it took about thirty weeks of concentrated, at least half-time (20 hours a week), effort to create a workable **course**.

A sizeable investment of time is required to learn the animation software, the programming language, and how to efficiently organize and file the lecture files...

...lectures is both time consuming and initially unfamiliar. Each chapter's lesson is written much like an act in a many-part play, where the **course** creator designs the set (the PowerPoint slide), orchestrates the scene (positioning the animated character on the screen and animating its gestures) and writes the screenplay...

...on-screen access to additional learning resources is also time consuming. For instance, the answers to the end of chapter exercises required extensive editing for **content** and grammar, outlines were written for each lesson and on-screen frames were designed to allow the links to slides, exercises and outlines to be...lecture were also imbedded in the start page.

The tradeoff in instructor time occurs in three ways. First, no time is spent lecturing once the **course** is up and running. Second, it is possible (where allowed) to compress the semester into a shorter time period, allowing several weeks of time each semester for other academic pursuits. Third, once created, the **course lectures** can be **revised** and edited quickly and easily. When combined with the learning outcomes, the payoff may exceed the investment for some.

Although anecdotal, the **course** developer's perception is that student performance was generally superior in the distributed learning environment. The dropout rate was lower, exam scores were noticeable higher and student's seemed to be much more engaged in learning (which they indicated by their questionnaire responses). Use of the additional, **online** or on-CD **learning** resources was high, and students seemed to appreciate having these additional tools readily available to them at no cost.

On balance, the benefits of implementing a distributed learning **course** augmenting live **tutorials** and seminars with animated lecture **material** seem to outweigh the costs. However, the initial learning curve is steep, especially for a programming novice, and the frustration level at the outset can be overwhelming at times. Support from the department and college are important components of embarking on an adventure such as development of a **course** like this. The freedom to experiment and the necessity of placing one's research stream in abeyance are important and easily overlooked intangible requisites for this type of **course** development.

#### Endnotes

1. The text used in this **course** was Floyd and Allen's (1999) Real Estate Principles.
2. The license agreement with Microsoft allows distribution to WSU students via CD-ROM provided no...

...the student's perspective. This site was immensely helpful as a starting point, and is recommended to anyone who is interested in creating a similar

**course.** Ray August's website is found at: <http://www.august1.com/lectures/HowTo/>.

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Marvin L. Wolverton\* and Mimi Wolverton\*\*

\*University of Nevada...

#### **Descriptors:**

...Educational **materials**;

#### **Classification Codes:**

7/K/16 (Item 2 from file: 15)

DIALOG(R)File 15: ABI/Inform(R)

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#### **Abstract:**

...train professionals to assist OLADE with fulfilling its mandate. The University Library believes that distance students should have the same access to electronic databases, research **materials** and document delivery as on-campus students. Technology and the Internet have enabled these services for off-continent distant learners. Through direct Web connections and...

#### **Text:**

...train professionals to assist CLADE with fulfilling its mandate. The University Library believes that distance students should have the same access to electronic databases, research **materials** and document delivery as on-campus students.

Technology and the Internet have enabled these services for off-continent distant learners. Through direct Web connections and...

...14-month programme is delivered each year at the GLADE Headquarters in Quito, Ecuador. It includes an individual and group project as well as advanced **courses** and seminars focusing on such Latin American and Caribbean realities as renewable and non-renewable energy systems, pollution, energy economics, environmental impact assessments, ecology and ...

...C Library recognises that information resources are critical to the success of a student's educational experience and strongly advocates equal access to information for **distance education** students. Access to appropriate resources and services are of paramount importance and collections, regardless of format and location, are essential to support the academic curriculum...

...first intake of students in 1997 was not part of the project). One section of the visit consisted of a twohour instruction session on database **content**, access procedures, search strategies and a general introduction about the importance of research and identification of what was available ...in the traditional manner with faculty and MRC staff participating in on-site instruction, the U of C/OLADE Project decided to pursue exclusive electronic **course** delivery. A long-- term anticipated result was that **courses** or seminars delivered electronically anywhere would allow more individuals within the Latin American and Caribbean areas to participate in the programme without the Quito residency...

...project was organised utilising distance technology, not only to test the technical aspects of computer delivery but also to determine the students' response to multimedia **course** components. One **course** (human resources management) and one seminar (environmental dispute mechanisms) were prepared for the new intake of 19 students. They still had to attend classes at...

...and the necessity of a sustained live connection due to the distance between the continents, is sometimes questionable. Software had to have the ability to **update** new information and **course content** easily. Security issues, including the ability to block unauthorised **access** and copying, are important. **Following course content** design by the U of C faculty and with assistance from an on-site facilitator at OLADE, the **course** and seminar were offered in early 2000. Lessons learned included the

challenge of the delivery format for the students. Because computer skills of incoming students...

...the research skills distance module on CD-ROM was to provide the students with enough familiarity with the relevant information and search techniques to locate **materials** related to a specific topic. The modular **tutorial** was to be informative, not interactive, and equivalent to approximately four hours of instructional time. The CD-ROM had to be as clear and accurate as possible, easy to use but also cost effective. The product had to provide an overview of database **content** through demonstrations and explanations, hands-on practice capability, written instructions and direct connection to the databases by clicking on the Web site imbedded in the...

...edited to insert headings and sections, to add Internet site addresses and explanatory notes for smooth organisational transition between modules. The result was a combination **audio** voice-over with teaching screens and a video, which personalised the presentation. Once completed, the video was transferred to a CD-- ROM and distributed to...The CD can be used at any time as a reference tool and does not have to be used sequentially when students need to review **material**"; "The CD is user-friendly and practical"; "It was the best option to demonstrate the U of C Library **materials**"; the "multimedia was easy to follow"; and "It was an excellent idea for **distance learning**", demonstrated that the information literacy project was on the right track.

#### Review and revision

Technology is ever changing. Development of new software, new electronic databases and new methodologies must be accommodated in order to better serve the **educational** process in general and **distance education** students in particular. For the new intake of 26 students in 2001, it was decided to revise the CD-ROM to improve instruction and offer...

...supplied to enhance the visual demonstration. The software allowed for a capture of the close-ups of each screen and provided "crisper" visuals and clearer **audio** back-up than the previous videotapes of the same **material**. The detailed demonstration of how-to-access and how-touse the databases with accompanying vocal information was then incorporated into the existing CD-ROM replacing...

...combination of video segments and on-screen demonstrations proved to be beneficial and students have begun to search databases and request

interlibrary loans for their **course** assignments and masters thesis project.

#### Conclusion

**Distance education** has created new challenges for the information professional. Students should not be penalised by distance; they deserve the same resources and services as on-campus...

...appropriate students have access. The promotion of free authoritative and evaluative Web sites from government and association providers augments the subscription products. Easy access to **materials** via document delivery is enhanced with the knowledge of what is available, even if it is not on-site.

Key issues that need to be...

#### Descriptors:

Distance learning;

#### Classification Codes:

7/K/17 (Item 3 from file: 15)

DIALOG(R)File 15: ABI/Inform(R)

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### **New horizons in distance education: The online learner-centered marketing class**

#### **Abstract:**

...classes either partially or totally online. This shift is due to rising costs in education, enrollment management issues, and an evolution in the use of **distance learning**. A study first describes this evolution in **distance learning** and the progress into **online** classes. Next, based on their online marketing class experiences, the authors offer guidelines for other marketing faculty preparing to teach online. The focus is how marketing educators can use the **online** technology to provide a better **learning** experience for their students. Concerns marketing instructors may have with teaching online **courses** are discussed.

#### **Text:**

...enabled) or totally (Web exclusive) online. This shift is due to rising costs in education, enrollment management issues, and an evolution in the use of **distance learning**. This article first describes this evolution in **distance learning** and the progress into **online** classes. Next, based on their online marketing class experiences, the authors offer guidelines for other marketing faculty preparing to teach online. The focus is how marketing educators can use the **online** technology to provide a better **learning** experience for their students. Concerns marketing instructors may have with teaching online **courses** are discussed.

The traditional teaching paradigm, i.e., talk and chalk, seems doomed in the long run for both economic and societal reasons.

Karuppan and Karuppan (1999, p. 37)

**Distance education** has experienced increased growth in the past decades. In 1993, there were 1.3 million students taking **distance education** classes (Banas and Emory 1998), and that number has now increased to more than 11 million students (Hankin 1999). Additionally, the composition of the average...

...group want flexibility in terms of the time and location of instruction. Thus, marketing educators must determine how they can best address this market's **educational** needs.

**Distance education** includes all of the arrangements for providing instruction and transmitting educational **materials** through print or electronic telecommunication media to geographically dispersed students in a place or time different from that of the instructor (Moore 1990). According to Steinberg and Wyatt (2000), "More than one-third of all colleges and universities in the United States already offer **distance learning**, as it is called; by 2002, four of every five are expected to do so" (p. 1).

The most recent entry into the **distance education** delivery method is the use of online **courses** delivered through the **Internet**. According to Peterson's **Distance Learning** Guide, the number of cybercolleges grew from 93 in 1993 to 762 in 1997 (Hankin 1999). Several accredited universities have been leaders in offering online **courses**. One of the better known online programs is Duke's Global Executive MBA, an executive program that takes students on five 2-week residential **courses** located around the world, as well as asynchronous bulletin boards, chat rooms, instant messaging, e-mail, and online lectures (Davis 1999). Other schools known for...

...such as Capella University, Nova Southeastern University, and the

University of Phoenix (Eastman and Swift 2000). Finally, several consortiums are being developed to offer online **courses** and programs, such as the University of Texas System's Telecampus, R.Ledu, the Electronic Campus, and the Western Governor's University (Eastman and Swift 2000).

Emphasis on this type of **course** delivery has come about for several reasons. First, the costs of education have soared, and universities are seeking more economical methods of **course** delivery. Second, it is expected that by 2000, 95% of workers will be using technology in some manner in their jobs (e.g., e-mail...

...Oblinger and Maruyama 1996). There exists a tremendous opportunity for those programs that can provide working professionals with not simply degree programs but also certification, **online training**, and continuing **education** opportunities (Abernathy 1999; Aron 1999). According to Aron (1999), "Access, cost and some evidence of superior educational effectiveness are persuading companies to provide more and more of their **training online**, through programs purchased from for-profit providers and degree-granting universities" (p. 63). Third, because many of today's learners are defined as being older...

...our students to recognize and serve customer needs; likewise, we must be prepared to address the changing needs of our students and our stakeholders.

The **online education** delivery method moves the **course** from a "talking-head," instructor-centered, passive student model to an independent learning, student-centered, empowering model (Markel 1999). Learning becomes as important as teaching...  
...lecturing) and more likely to rely on peer-to-peer learning in the form of collaborative discussions and team projects.

How does the instructor change **course content** and adapt teaching style to participate in this new **online** environment? Unfortunately, the marketing **education** literature does not address the topic of **learning** or teaching **online**. Given that the number of students needing this method of learning and the number of universities offering online **courses** will increase, our hope is to encourage discussion among marketing educators about how to best address this new learning environment. Thus, the purpose of this article is to

(1) provide a history of how **distance education** has evolved to its current format, (2) provide guidelines for helping the marketing professor make the transformation to the new type of **online education**, and (3) discuss the concerns in using this new technology for teaching marketing. We examine the literature in a variety of areas, including computer/technical...

...management/human resources, library science, and the popular press, and apply what these articles offer to marketing professors who may be preparing to teach marketing **courses online**.

#### HISTORY OF **DISTANCE EDUCATION**

**Distance education** is normally viewed as having developed in four generations (Bates 1995). The first-generation models (from the 19th century to the 1960s) used only one...

...generation, which started in 1985, involved new delivery methods with multiple technologies, including the computer, CDs, e-mail, chat rooms, bulletin boards, video conferencing, and **audio** conferencing. The teacher in this generation was often responsible for being a multimedia coordinator for the multiple delivery systems used (Hankin 1999). Many universities began...

...time), and a limited amount was synchronous (in real time).

Asynchronous

learning networks are based on the following four principles: (1) availability of the teaching **material** to students 7 days a week, 24 hours a day; (2) interactivity; (3) students' active involvement in the teaching process; and (4) prompt feedback (Karuppan...

...and download speeds) (Greco 1999), however, most delivery methods are still caught in the third generation. It is expected, however, that these new models for **distance education** will expand dramatically in the near future (Dolence and Norris 1995). McCormack and Jones (1998) suggested that the World Wide Web can be used in three ways: information distribution (of **course material** and **course content**), communication (e-mail, discussion groups, and chat rooms), and class management (tracking attendance, recording progress, and calculating grades).

Forman (1995) suggested that there is a...

...lecture format (Karp and Yoels 1976), yet interaction is related to improved learning (Fletcher 1989). Thus, Sherron and Boettcher (1997) suggested that the interest in **online education** has come about due to the development of communication and computer technology and the need for workers to develop skills without interrupting working lives. The...

...model no longer seems to be the appropriate delivery mechanism for some educational markets (Abernathy 1999; Aron 1999).

Despite the problems noted with the traditional **education** model, **distance education** still has a poor image as a learning

alternative (Sherron and Boettcher 1997). This perception was countered by Russell (1992), whose review of published studies in a variety of fields within **education** showed that **distance learning** is just as effective as traditional, face-to-face learning when measured by achievement, grades, job performance, attitudes, and cost-effectiveness. Additionally, the instructional format itself has little effect on student achievement as long as the delivery technology is appropriate to the **content** of the class and all participants have access to the same technology (Trier 1996). Finally, **online learning** is gaining respectability as accredited and top universities are adopting it with the same commitment to quality that they demonstrate with their traditional programs (Greco 1999).

#### ALTERNATIVES AVAILABLE

Online **courses** can be used in a variety of ways for different marketing **courses**. Web-exclusive classes are best used for smaller classes, such as upper-level or graduate marketing classes. They can be used to organize and assist...

...their own (Abernathy 1999).

Web-enabled classes, on the other-hand, can be a great assistance to professors teaching large sections (e.g., introductory marketing **courses**), since professors can use the Web to post notes and ... begin to use the Web for classes, a gradual introduction to Web activities is recommended. One of the easiest methods to begin taking advantage of **online learning** is to use Web technology to enhance the class **material**. Professors may develop a home page and provide information with regard to the classes that are taught. A first step may be the provision of...  
...that are used during class. Professors can also provide a copy of the class syllabus on the Web page for reference by students. Instructions for **course** assignments and research projects can be provided, and the instructor may provide some hyperlinks to Internet sites that will help students obtain additional information. Instructors can encourage not only communication via e-mail but also the submission of **course** assignments as attachments to the e-mail message.

With the addition of Web classroom/platform builders, the instructor can use the tools for class management...

...tools, instructors are able to track student access to the Web classroom, record their progress, and calculate their grades. Students, in turn, can access the **course** records to check their grades at any

time. Students are also able to interact with classmates through discussion and chat rooms.

Thus, these Web technologies...

...traditional, face-to-face marketing class. The instructor still meets in the traditional class environment but uses the tools to help communicate and manage the **course**.

#### Web-Exclusive Online Marketing Class

Once the instructor is familiar with the Web-enabled class capabilities, the next step is to use the Web technology for **content** delivery. The **course content** can be delivered either asynchronously or synchronously. With asynchronous delivery, the teaching **material** is available 7 days a week, 24 hours a day. Students "interact" with the **material** and then participate in the discussion groups to further enhance their learning by interacting with fellow students and the instructor. Learning takes place when and...

...becomes actively involved in the learning process. Occasionally, if the level of technology permits, the instructor may want to incorporate synchronous delivery (in which the **course** takes place in real time) or live transmission of information.

Palloff and Pratt's (1999) book Building Learning Communities in Cyberspace details how professors can best use a Web-exclusive online **course**. According to Palloff and Pratt, the instructor has four roles in the online class: technical, organizational, social, and intellectual. The technical role involves becoming familiar...

...planning ahead and informing students what to do if the system goes down and where to go for help. The organizational role involves planning the **course content** and activities ahead of time. The instructor must set the agenda, decide on assignments, inform students of when projects are due, and, in general, manage the **course**. An online **course** typically involves much more planning and preparation than a face-to-face class. The social role involves making certain that all students are participating in...

...discussions as well as providing meaningful feedback to students. An instructor must monitor class discussions to ensure that the discussions are staying on track. With **online learning**, the instructor must develop an **online learning** community (Palloff and Pratt 1999) for the benefit of all students. Finally, the intellectual role involves developing **materials** for the **course content**. Additionally, the instructor is responsible for encouraging deeper analysis

of the **material** by asking provocative questions in the discussion groups. It has been determined that students work harder and produce higher quality work online because other students...

...comfortable with a Web-enabled class before he or she progresses to a Web-exclusive class. Because most universities do not provide release time for **course** preparation, learning the technology is usually done on one's own time. Taking simple **tutorials** with the **courseware** and practicing will enhance one's ability to use the technology. One also must be comfortable communicating through the written word rather than the spoken word. Second, online **courses** require a great deal of commitment to this type of education delivery. Instead of a specified time period in front of the classroom for 3...

...each day of the week interacting with students through the discussion groups. This is in addition to the normal activities of grading student assignments, preparing **course material**, and so on. Palloff and Pratt (1999, p. 50) compared the time commitments for an online versus a face-to-face class and found that a face-to-face class takes approximately 6.5 to 7.5 hours per week versus 18 to 19 hours per week for an online **course**, including time for preparation, class time, and follow-up. However, just as the student is place and time independent, so is the faculty member. As...

...modem is available, as well as a laptop computer, "class" can be held anywhere and anytime.

Finally, the instructor is responsible for preparing, in advance, **course material** such as the syllabus, an announcement page, **course content**, group activities, discussion questions, and activities, all of which involve different types of input compared with the traditional, face-to-face class. Karuppan and Karuppan (1999) suggested that the design of asynchronous learning networks involve the following phases: "(1) creating a Web page including syllabi, lecture notes, reading **materials**, and assignments; (2) developing computer conferencing facilities, including discussion groups, and a help desk; (3) linking conferencing and Web page assignments; (4) testing the **materials** and developing **course** management tools; and (5) evaluating, both formative and summative" (p. 38).

The **following** guidelines with regard to class **access**, the syllabus, announcements, **course content**, student evaluation,

and classroom management are based on experiences in teaching a business marketing class to undergraduates. The class was presented using a Web **course** platform as a **course** tool.

#### Student Access to the Class Web Site

Most of the class management programs have techniques for student access to the class Web site. Usually, the students access the **course**'s URL (Web address) and enter their student identification number as well as their own passwords. Once logged in, they can review the **course content**, participate in discussion groups, receive assignments, and check grades for various assignments anytime and anywhere.

In the business marketing class, the level of student familiarity with the Web **course** platform varied. The instructor discovered that at least one face-to-face class meeting was required to explain how the Web **course** software should be used.

#### Syllabus

In the online class, the syllabus must be more extensive since the instructor is not available to explain the class plan to students. The syllabus must contain firm guidelines for student participation. Anticipating student questions and problems will solve many problems when the **course** begins. It is recommended that instructors tell students that all questions about the class should be posted in the discussion forum. In many cases, other...

...posts per week to prevent some students from monopolizing the discussion board. Marketing professors typically encounter some outgoing students who dominate the class discussion. With **online learning**, this excessive participation can often involve students who would never speak up in a traditional class. Finally, the syllabus should advise students to access the **course material** a minimum number of days per week (5 is recommended) to keep up with the class discussions.

Students also need explicit instructions on how and...

...For instance, capital letters should only be used for emphasis; otherwise, it appears as if the author is yelling. Of most importance to students, of **course**, is how they will be evaluated. The syllabus is the place for explaining the criteria for grading assignments, participation, projects, and exams. The weekly lessons, as well as a time line for assignments, should be explained.

In the business marketing class, an extensive syllabus was posted to the **course** Web site. Additionally, the Web **course** platform provided a calendar on which due dates for assignments, exams, and class

events were posted.

#### Announcements

Access to class announcements should be made available to students. The announcement area should include any **updates** on **course** issues or requirements. In the business marketing class, the first part of the **course** contents was devoted to announcements. Once an announcement was posted, it remained on the site so that students could refer back to it during the semester. Additionally, the Web **course** platform has a calendar feature that can be used to note changes to the **course**. Finally, with the platform there is also an internal e-mail system. When an important announcement had to be made, the instructor was able to...

...mail to each member of the class. It was essential, however, that the instructor encourage all students to check the e-mail site daily for **updates**.

#### Course Content

**Course content** will vary depending on what type of marketing class is offered. In many cases, the instructor will prefer to prepare lessons, similar to the traditional classroom lecture. Students may also be asked to read **material** from another source, such as a textbook or an article. In addition to the lecture, the instructor must keep the students engaged in the class...

...Each of these methods are dealt with below.

#### Lesson Module

Instructors can incorporate a lecture in written form or, if the technology is available, in **audio** form. Many instructors use the same type of presentation slides that are used in the traditional classroom. Because students will be reading the information, it is advisable to keep this portion of the class short. Faculty must provide **materials** with real substance and not simply lecture outlines (Karuppan and Karuppan 1999).

The business marketing class used a variety of techniques for the lessons. First, it was assumed that students had read the assigned chapters in the textbook. In most cases, the instructor used the lesson to elaborate on the **material** from the textbook or provided additional information. When the lesson was in written form, the instructor attempted to use pictures or charts to illustrate words...

...Occasionally, a hyperlink to a URL site was provided so that students

could obtain more information.

As the instructor became more familiar with the Web **course** platform, additional means of coursework presentation were used. Accustomed to using presentation software slides, the instructor used the "record narration" function of the presentation software...

...be presented as if in a classroom. The entire lesson (with narration) can be saved as a single file and then uploaded to the Web **course** software. To hear the **audio**, students, of **course**, must have speakers on their computers. If students only have access to a computer lab, earphones must be made available.

After acquiring a video camera for the computer, several lessons were videotaped in the instructor's office and uploaded to the Web **course** platform. Students could then access the lesson to hear and see the instructor. Varying the use of written words only, written words with **audio**, and audiovisual presentation kept the class interesting and different each time. Once the lesson was over, students were assigned either a reading, case, or question...

...students were told to go to the discussion forum to introduce themselves to the rest of the class. They were provided with an outline of **material** to include. Students were also told that they had to read the other students' information and, in some cases, reply to their postings. This is...

...In many cases, the discussion forum is where the primary learning takes place. Questions in the discussion forum may encourage deeper analysis of the lesson **content** and require that the student go back to the **course content** and internalize it. The professor, however, must intercede quickly if rude or inappropriate comments are made.

In the business marketing class, for example, one of...

...should also be monitoring the discussion to track who is participating, since part of the grade will depend on contributions to the class discussion.

The **course** management tool of the Web **course** platform was very helpful in the business marketing class. The instructor was able to track individual students' use of the **course** pages, including the discussion group. When one student complained about a low participation grade on a discussion forum assignment, the instructor was ...graded. Each student would have been asked to prepare an executive summary, which would be posted to the Web for review by all.

With online **courses**, it is important to note that cheating is always a concern, since the instructor never actually witnesses the student doing the work. The instructor must...

...of the cases. Not having to physically meet for case discussions was appreciated by many of the students.

#### E-Mail

As mentioned earlier, the Web **course** platform has an internal class e-mail tool. In addition to sending announcements to everyone in the class, e-mails can be sent to specific...

...problem, they were able to talk to the instructor via e-mail privately.

#### Student Evaluation

One of the major faculty concerns when considering the online **course** is how to conduct examinations. There are a variety of possibilities. Obviously, if the test takes the format of an open-book exam, students can ...

...cheat on the exam, but it makes it more difficult for them to do so. Note, however, that it would be difficult with an online **course** to ensure that the student who registered for the **course** is the one taking the exam.

In the business marketing class, ...for assignments to be returned in class, students were able to access their grades as soon as they were uploaded by the instructor. The Web **course** platform enabled students to keep track of their overall standing in the class, since the instructor kept a running count of the total points and...

...others in the class. Another advantage for the instructor was that the grades could be posted from anywhere. By posting grades online with the Web **course** platform, the instructor avoided many of the privacy issues that exist with posting grades on her office door or giving them out over the phone...

...attend several conferences during the semester. With the traditional class, another professor would have to substitute, and plans would have to be made for class **material**. However, with the online class, the instructor was able to log on from a hotel room to join the class discussion, answer class e-mails...

...be faced (Willis 1994). These issues include but are not limited to the legitimacy of this form of teaching, the high dropout rate for online

**courses**, the time investment required by faculty using **online learning**, technical capabilities, security issues, intellectual property concerns for **materials** developed for online **courses**, and overall budget/resource issues for universities.

Because **online education** is still sometimes viewed as an inferior form of education, those making promotion and tenure decisions must recognize the legitimacy of online **courses**. Additionally, accrediting organizations must be able to evaluate the quality of online teaching (Abernathy 1999). Thus, universities will need to better utilize **course** and program assessments to be able to demonstrate, and improve if needed, the quality of online **courses**.

Online **courses** experience a high dropout rate, often as high as 50%, due to students' feeling isolated and having to take greater responsibility for their **learning** (Aron 1999). For **online courses** to work, faculty must develop an **online learning** community for their students (Palloff and Pratt 1999). This community allows a class to bond electronically instead of face to face as in a traditional...  
...one's parents, and socializing with a diverse group of people count for a lot in college education" (Tweney 1999, p. 66).

Because an online **course** takes twice as much time to develop as a traditional **course**, administrators should provide release time for **course** development. However, many reward systems do not offer any incentives for teaching the online class, despite the fact that there are many more demands made on the instructor when teaching an online **course**. Therefore, consideration must be made for **course** loads to recognize these increased demands. While an instructor in a traditional **course** knows exactly when the class will be conducted during the normal working week, the online instructor must be available 7 days a week for student...

...difficult adjustment for faculty members to be "on-call" all the time (Greco 1999). It is difficult for faculty to balance the demands of traditional **courses** with set class times and office hours while also teaching online **courses** that require a consistent presence online 7 days a week. If universities want their faculty to use online technologies to better serve their students, they...having a laptop computer, since they will be checking discussion boards when they are home and with their families on weekends), software (such as Web **course** platform programs and virus programs), and assistance (such as a graduate student to help convert **materials** to an online environment). Universities must realize that the demand on their servers will increase, especially near exams and at the end of the term...

...trained in instructional design. The design, creation, and implementation of effective in-service faculty training is the best way to ensure the success of an **online learning** program (Willis 1994). Instructors must develop a level of proficiency and comfort in using the technology as the only link with the student. They also...

...is limited. Universities will need to address potential cheating problems; for example, how would an instructor know who is doing the work in an online **course** (Stuart 1999)?

Another issue of importance for faculty members is intellectual property rights. According to Steinberg and Wyatt (2000), "Academics and their academies are already...

...lectures and research" (p. 1). Although faculty have historically had property rights to their own research, it is less clear who has property rights to **course** design and **materials** (Banas and Emory 1998), particularly if the university provided resources such as release time, equipment, and training to develop the **course**. Some institutions believe that instructional **materials** that are produced for a specific **course** belong to the institution. It has been suggested that in the future, institutions will require faculty to assign all copyrights on **course material** to the university as a condition of employment, similar to the policy on patents (Noble 1998). Harvard University, for example, is revising its policies on how faculty use their **course materials** in light of concern over a law faculty member selling videotaped lectures to Kaplan (Steinberg and Wyatt 2000). At Drexel University, the school owns all rights to online **course material**, sharing the profits with their professors (Hankin 1999). To address this issue, many faculty are taking advantage of textbooks with online capabilities. In this way, they use less of their original **material**, over which they may not have full intellectual property rights.

The American Association of University Professors has argued with the U.S. Copyright Office that...

...similar to the rights enjoyed by instructors in the traditional classroom.

A final major concern for faculty may be the manner in which universities view **online education**. Universities as **content** providers are involved in three functions: production (generate **content**), programming (package it in **courses**), and distribution (present it to students) (Tsichritzis 1999). Some are concerned that administrators view **online learning** as the

high-tech version of the giant lecture hall, when in reality online **courses** require much smaller class sizes and more resources than traditional classrooms to succeed. Administrators must realize that while online **courses** offer new opportunities to better serve students, at this point **online education** is very expensive in terms of resources and time. All universities may not be able to offer all of their programs and/or **courses** online (Tsichritizis 1999). Additionally, administrators may feel that Web-based teaching will reduce duplication and printing costs, which is incorrect, since many students print out what is on the Web, often in university computer labs (Karuppan and Karuppan 1999). Thus, administrators must realize that **online learning** is a costly proposition, particularly in the short run.

## CONCLUSION

**Distance education** is often held up as an example of extending the opportunity for more diverse, large numbers of people to participate in higher education. As universities grapple with increasing costs and decreasing enrollments, **distance education** in general can be a lifesaver in extending the reach of the university. Indeed, the average online learner is different from the traditional college student...  
...motivated, has higher expectations, and is more self-disciplined. He or she is older than the typical student and possesses a more serious attitude toward **learning** (California **Distance Learning** Project 1997). Additionally, he or she has a different learning style and intellectual skills (Neal 1999).

Along with this change in target market, the personal...

...and delayed communication exists (Alexander 1999). Good teachers, regardless of the classroom environment, stimulate, guide, and challenge their students (Sherron and Boettcher 1997). The asynchronous **learning** activities in the **online** classroom provide an opportunity for the instructor to interact with students and for the students to interact with each other in order to develop a cohesive **online learning** community. Quality **education** comes from the **content**, design, and preparation, not from the delivery technology.

The growth in online **courses** in business is increasing dramatically as students search for flexibility in ...They are also introduced to the tools necessary for learning new skills required for their jobs.

Education is a process, not a place. How a **course** is delivered is less important than whether the **course** has been well designed and is well monitored. Active participation in the online class and a higher

engagement of students result in greater interest in the subject matter and a higher level of knowledge retention on the part of students. If the online marketing **course** manages to involve the student and requires ongoing participation, student learning will be as good as, if not better than, learning in the face-to-face marketing classroom.

Peter Drucker recently predicted the demise of the residential university due to uncontrollable costs and the availability of **distance education** technologies (Moore 1999). Will **online learning** ever replace the traditional classroom? Probably not. Higher education has diverse learning goals that require a multifaceted array of educational strategies. Because the learning needs of students are also diverse, providing options for all students will be essential. It is clear that the market for **online education** will continue to expand into the next century. Marketing faculty who want to stay in the forefront of education would be wise to embrace the...

...new teaching and learning paradigm.

As marketing faculty, we must recognize the changes in the educational marketplace and be prepared to serve our students through **online learning**. This article attempts to initiate discussion among marketing faculty in the marketing literature with regard to how to teach with this new educational delivery method. Given the time and issues involved in using the **Internet** for **education**, more research is needed to help marketing faculty best address the changes in the **educational** environment. **Online learning** is here to stay, and marketing faculty must adapt to provide quality education to their students.

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**Abstract:**

Web-based authoring tools can add a new level of collaboration to **online learning**. The system an organization selects should be capable of delivering the kind of instruction that best suits the organization's educational needs at a price the organization can afford.

The 4 steps required for proper implementation of collaborative **online learning** are: 1. assess in-house development capabilities, 2. assess learning needs, 3. assess audience's equipment, and 4. test the system.

**Text:**

Headnote:

Web-based authoring tools can add a new level of collaboration to **online learning**. But unless you choose carefully, it's easy to end up with more than trainees can use or **course** developers can work with.

If you run a training program that uses instructor-led or computerbased training (CBT) offerings, you probably wonder if some of your **courses** might not be better deployed using the power of the Internet or your company's intranet. You're not alone. All over the world, companies are trying to figure out whether, when and how to use **Web-based training**. Part of the puzzle involves deciding which existing **courses**, if any, to convert to WBT.

Looking to cash in on this shift are a host of hot new **course**-authoring products and distance-delivery systems that promise to electrify

your training program. And it's not just start-ups that are eyeing this market...

...be sold on the idea of WBT as a part of their future instructional mix,  
confusion remains as to the best way to get a **course** online and operational. The question: Which WBT product fits your instructional needs  
and technology infrastructure at a price and learning curve that your training department can honestly afford?

Solitude or Collaboration?

The buzzword that defines **online learning** today is "collaboration." The older generation of CBT authoring systems-programs like ToolBook and Authorware-were based on the assumption that learning would occur in...

...instructional screens, getting automated feedback until the program detected an acceptable level of competence. With CBT, interaction occurred  
primarily on one level: between learner and **content**.

The Internet breaks the sentence of solitary confinement because it supports more levels of interaction. Hypertext ( HTML ) and Java, the dynamic languages of the World Wide Web, allow learners to experience instruction on three levels: 1) between learner and **content** (taking a server-graded pop quiz online); 2) between learner and instructor (e-mailing or chatting in real-time with the instructor for special help);  
and 3) among other learners (having access to electronic bulletin boards  
where groups gather to discuss issues pertaining to the **course**).

The new generation of authoring and delivery systems-Symposium, TopClass  
and LearningSpace, to name just three of several contenders-allow instructors to build richly interactive classrooms.\* TopClass, for example,  
supports not only an HT ML-based authoring system, but built-in asynchronous message boards where classmates can share ideas about **course** issues and team projects. Symposium is an instructorled collaborative system that supports real-time **audio** chat in an electronic classroom environment as well as real-time  
applicationsharing  
and asynchronous threaded discussion boards. Symposium also allows learners  
to revert back to stand-alone CBT exercises and **tutorials** after live class sessions are completed.

But the amount of collaboration that an online system allows should not be  
the deciding factor in choosing a...

...that gets in the way of the instructional process. After all, the "solitary confinement" model I just described is also known as self-paced,

individualized **learning**.

How do you know which **online** system best suits your needs? What should you be looking for in a system? High-powered video potential? A collaborative learning structure? The golden rule...

...the more power a system promises for building custom applications that support "fat media," like video and animation, the more programming and design skills your **course** development team must possess. Consider carefully how much time you want your **course** developers to spend mastering an authoring system, as opposed to developing and delivering **courses**.

Quick-Start Options. Several systems stand out as "quick start" possibilities for SMES with limited programming or CBT instructional design knowledge. Digital Trainer is the quickest system to master. If you seek to author simple, **tutorial-style courses**, and you want your **course** developers isolated from the advanced flowcharting and icon-based methods of **course** development used in more sophisticated design systems like Authorware and I BT author, DigitalTrainer is a good firstlevel authoring choice. A simple toolbar option makes...

...authoring-put it in a window and select tools from the palette. For authors who know C programming, QuestNet+ allows for the extended development of **courses** that support advanced animation and visual effects.

Toolbook is less powerful than QuestNet+, but remains an excellent all-around choice for SMEs because it features an easy-to-understand book metaphor and comes with **course** templates and "widgets" coding ... scripting. One of the first systems designed specifically to deliver training using the collaborative potential of the Web, TopClass lets stand-up instructors quickly assemble **courses** by transferring existing notes, syllabus, reading assignments, and group handouts into successive frames of a WYSIWYG Web page. TopClass is a serious, cost-attractive option for anyone seeking to transfer instructor-led **training** to an **online** collaborative platform.

Consider Current Investments. Some companies have already invested in an older generation of CBT/CD-ROM authoring systems. Toolbook, Authorware, IconAuthor and Quest...

...your needs, consider pledging allegiance to the online version of that product for the time being to save on retraining and retooling-unless your educational **content** or the needs of your end-users clearly dictate otherwise.

Systems like Authorware allow for older generation **courseware** to be

treated with Macromedia's Shockwave-or "shocked," as it is termed so that they can be accessed from standard Web browsers like Netscape and...

...that Authorware learning modules can be easily imported into them. In fact, some newer collaborative systems, like Symposium, are designed not so much to "author" **courses** as much as to import **materials** built in established CBT systems like Authorware and PowerPoint into their "electronic classroom" structure.

Assess Your Development and Deployment Infrastructure.

There's no sense in...

...collaborative learning environment, and it is fairly easy for SMES to master. The downside is that it requires a Lotus Domino server. (Students can access **courses** via a Web browser, but developers and administrators must operate within a Lotus Notes environment.) By contrast, TopClass, another collaborative system that enjoys many of...

...and navigate than the Lotus database structure.  
Step 2: Assess Learning Needs

We are a TV society. Everyone loves to see videos embedded in educational **content**. But **course** design should follow the demands of your **content**, not the desires of a design team that's hot to use a sexy new animated spin feature for the company logo. Given bandwidth considerations of the Internet, movies, **audio** and animation should serve educational purposes and not simply act as artistic embellishments.

At present, the best and most versatile systems for delivering customized animation...

...create and "shock" CD-ROMS using Authorware and the Shockwave plug-in that Macromedia pioneered.

Don't overlook the mix-andmatch option to customize "hybrid" **courses**. Toolbook was designed as a CBT tool, so much of its booklike instructional design assumes that a learner will be working in isolation, waiting for...

...move him or her along. With Toolbook, even in its Web-enabled form, interaction occurs primarily on one level: between the learner and the educational **content**.

But what if you already have the technology and know-how to use Toolbook, and want to add collaborative features to your Net-based Toolbook

**course**? Perhaps you have 50 sales managers scheduled to take a Toolbook **tutorial** on sales motivation over the Web-but you'd like for these geographically separated managers to stop midcourse and "gather" online to discuss problem sales scenarios they've encountered. A good solution may be to author your **course** in Toolbook, then add a separate, free-standing conferencing tool that allows your managers to brainstorm on the Web.

### Step 3: Assess Audience's Equipment

Never build an online **course** that might overshoot the technical reception abilities of your target audience. WBT is still in its infancy.

Reliable delivery of multimedia-especially video and animation...

...has improved things, but choked networks still remain a problem.

A less high-tech solution is simply to avoid excessive video and animation in online **course** development. Or use a hybrid approach: Store fat media on a CD-ROM, and use Internet hyperlinks for flexible **updates** to time-sensitive **materials**. Deploying your training via the company intranet, thus avoiding the open traffic of the Internet, is another common

ploy for delivering media-rich instructional **content**.

**Before** you develop **courses** that can be **accessed** only via specialized Web-browser plug-ins, keep in mind that while many people can use a Web browser, few may actually have the know-how to download and install RealAudio (for **audio** reception), Acrobat's Portable Document File (for files that download in full graphic splendor) or QuickTime (for playing video segments). Never overestimate the computer savvy of your clients or end-users. Doing so may mean half of them won't be able to see or hear your Internet-enabled **courses**.

If **course** access does require special add-ons or ancillary programs, make sure all the receiving workstations can be properly configured before the **course** starts. Even in companies where state-of-the-art equipment is readily available, networked computers may not be universally equipped with simple multimedia features like sound cards or necessary plug-ins such as Neuron, the program that makes Toolbook **courseware** accessible via a Web browser.

If training is going to be delivered to multiple locations, check with the network teams at all receiving locations to make sure that your **courseware** is compatible across what may turn out to be widely divergent desktop and network configurations. You don't want to invest in a **courseware** development and deployment system, only to discover that

the European sales division can't access the instructional platform you've chosen. Or that your client can't look at **course** management statistics because the system you picked has an odd database function for tracking and reporting.

What about **course** management and administration? While most CBT/WBT systems support an automated **course** management feature, generally a server-side function that tracks and reports on student progress, not all online **course** administrative packages are equal in their power or potential. Consider carefully what kinds of reporting you want available to you or your client at the end of each training activity. Macromedia's Authorware system has no built-in **course** management system, for example, but the Suite pack option includes Pathway, for **course** management. Pathway, however, is an add-on, and itself runs only on Windows, whereas Authorware, the multimedia **course** building software, supports cross-platform development and deployment.

One of the most sophisticated **course** management systems is supported by Phoenix for Windows. Phoenix uses a relational database to automatically track, store, and report on student online activity and progress. Custom reports can be generated based on need-to-know requests like the amount of time it takes each student to complete a **course** or average group scores. Phoenix can also isolate test items that are frequently missed or misconstrued by learners. It can set up pretests and posttests...

...within your learning curve and technology infrastructure, take each of the top three contenders for a test run. Viewing an authoring system is easy; most **courseware** companies will download a free demo version from their Web sites. Additionally, many companies have sample **courses**, hands-on **tutorials**, and white papers in their online product showcases. The ultimate test of how well a system will match your instructional needs is to design and deploy a small pilot **course** that mimics your essential needs in all areas.

Another source of comparative information is to talk to buyers who have used these systems. The Internet...

...atlantis.com/avalon).

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...have thought about. What does "Web search" mean to the information professional? In the early days of the Web, it meant exactly how it sounds

-- **material** found on the open Web.

However, as we move forward, the term "Web search" has taken on new meanings. Does a Web search involve tools like Google or AltaVista to reach "open access" **material**? Does it mean using the Web as a vehicle to log on to proprietary databases such as Factiva or Dialog? Not too long ago, logging...

...the scope of this article.

This article will primarily focus on the "traditional" Web search, i.e., search engines that assist in locating open Web **content**. The approach I have taken is to try to answer the questions I seem to get, in one form or another, at every conference, every...

...a search engine works is by using it. Conducting preemptive research on a favorite topic makes it easy to spot differences both in terms of **content** and the way results are presented and at the same time to gather new resources for your own bookmarks or intranet sites. For a list

...of questions would it help me answer?

Often the open Web may not be the place to begin. While it's nice to get quality **material** free, how long did it take to get it? Would standing up and walking to a bookshelf produce a useful answer in a much shorter...

...based service or a print collection more productive. Don't forget -- shifting from one format to another can be a two-way street. What you **learn** from a print or commercial **online** source can produce an effective search strategy for the open Web. A Web search engine may also provide you with specific names of people to...

...age when anyone can become a publisher. All they need is a Web connection, server space, and something to say and/or share. Once the **content** goes onto a server and once a crawler finds it, the Web search engines will make it available to everyone. Within minutes or days,

anyone with Web access can find that information. Amazing! And frightening!

Once they have found it, the major challenge to searchers is evaluating **content**. They must judge its quality, and often very quickly, using the criteria that information professionals have always used

to evaluate information. How does one do...

...may contain the answer will not suffice. We learn our print collections, let's learn our Web collections and bookmarks.

Easier said than done? Of **course**. Still, it remains a goal we should strive to attain.

The Domination of Google

Everyone, including me, loves Google. How could you not like it...on

what it already has. Google always seems to be introducing something new

and innovative. In February 2001, it started tracking portable document format (.pdf) **material**. The general public may not put a high demand on some of this **content**, but PDF documents offer information professionals masses of authoritative **content** from respected sources. At the time of writing, Google was still the only general search

engine to make PDF files searchable on a large scale...

...com

Here's hoping that Google continues to improve and add new useful features. Here is also hoping that Google continues to properly separate

advertising **content** from result sets. Yet with all of Google's wonderful abilities, good searchers know that the must never make any single Web search engine the...

...What do I mean by limitations? Here are a just a few of many possible examples:

\* Search spiders or crawlers (the software that brings back **material** to a database so you can search it) do not crawl the Web in real time. A page made available on the Web on Thursday...

...search results. Rely on more than one search engine. Make use of specialty search tools that often go "deeper" into a site to collect more

**content**. Take advantage of "Invisible Web" resources. Use Web directories like the Librarians' Index to the Internet to "mine" specific

sites. When you find something of...

...use; others call it the hidden or deep Web. However, for the most part

all the terms are synonymous. Searchers need to know about the **material** in this section of the open Web. In many cases the **material** comes from well-known, authoritative sources, is available at low or no cost, but is not accessible using a Web search engine.

Resources you interact...

...returned to you are examples of an Invisible Web page. So is a site that contains data that you can use for free, but only **after** you register. Why don't the search engines **access** this **material**? The search spider software seeking out **material** to bring back to the database finds nothing to retrieve in these examples. In the case of the custom page, the **material** is not accessible until the user calls for it and the system creates the page on the fly. In the other example, search spiders from...

...do not fill out registration forms. So once the spider hits a page that requires registration, the spider stops and moves on. None of the **material** below that registration interface is searchable from general engines. One other factor can block search engine access - the "no-robot" tag. Webmasters can check off...

...t want to be spidered and most of the good, responsible crawlers will respect that request whether for all or any portion of the **content** on a Web site. Sometimes, Webmasters - perhaps concerned about possible excessive usage - may block the spiders without fully considering how this decision can eliminate substantial audience for the **material** they have taken the time and trouble and expense of loading.

Prime examples of Invisible Web databases include American FactFinder from the U.S. Census...

...library catalogs, and many of the database available via GPO Access. What Should the Searcher Do?

Know what is available before you need it. Of **course**, this takes time and practice. We do much the same when becoming aware of the databases from LexisNexis or Dialog. What makes this even a...and Necessary

I often get a bit unsettled when people and companies refer to the Invisible Web. What many understand as the Invisible Web encompasses **content** actually visible to general-purpose engines like Google and AltaVista. What many label as Invisible, deep, or hidden Web **content** actually refers to basic HTML **material**, easy for the general search engines to index and make accessible. Many of the databases that are often reported as Invisible Web are actually just...

...specific subject (psychology, political science, and economics, respectively). Site-specific engines refer to the search engines that many sites make available to cover their own **material**.

The general search tools can, and often do, crawl **material** that you can also find using a specialized, focused, and site-specific search engine. However, in some cases, the general search engines may not cover this **material** as well as the specialized ones. For example, the engines may not crawl the key sites in a timely manner or at a deep enough level. Bottom line: Coverage of this **material** by general

search engines like Excite or All The Web may be spottier than the specialized search tools.

Here are just a few of the reasons why this problem occurs:

\* Time Lag. Unless paid for, spiders visit pages unannounced. **Material** changed or added between the dates when the spider last crawled the **content** -- as much as a month, a quarter, or longer--remains, for all practical purposes, invisible. News **material** is a good illustration. A normal page from the CNN site is technically searchable from any general-purpose engine. However, for some period, it will...

...100,000 pages of a site accessible does not mean that it has crawled the entire site. Some engines only take a certain amount of **material** and then move on.

\* Each Search Engine Database Is Unique. As the work of Greg Notess makes clear, each search engine database differs. What Google...this resource teach you about the hundreds of different search tools available, the knowledge this site offers will also make you a better searcher.

More **Content** Coming: The Ability to Search **Audio** and Video **Material**

When it comes to non-text formats, we already have and shortly will have even more to ensure that we can provide our users with the best possible answered. The ability to search video (e.g., newscasts) and **audio** (e.g., radio programs) continues to expand. **Material** that we would have to wait weeks for in the past, assuming it ever became available, is now available shortly after the words are spoken. This **material** can serve many types of users, including those in international relations and competitive intelligence. Of **course**, archives of this **material** are also available. In many cases these keyword databases are created using either voice recognition technology or by capturing the text from closed captions associated with the broadcast.

Work also continues on search tools that provide access to video and

**audio material** using a non-text mechanism to access the **material**. For example, you could search for a specific color or type of background. An article in Technology Review provides a good orientation

to the topic...Com (formerly Infoseek). So, if a user tells you that NBCi

is his or her engine of choice, in actuality they are searching GoTo.Com

**material**. Various "flavors" of this type of branding exist in the Web search world. To get an idea of how many of these engines are online...

...search engines) become familiar with the terminology and share this knowledge with others.

In the case of more "traditional" engines, be aware of how commercial **material** is labeled and where it is placed. For example, AltaVista offers "partner listings" at the top and bottom of a results

list. Excite uses the...

...least take advantage of the categories, hopefully assisting them in accessing the answer they want quickly.

Where Have All the Pages Gone?

Searching for older **material** is a challenge, often an impossible one. The issue as is old as Web searching and occurs not only in the Web search world, but...

...on solving this problem. One example is the work done by OCLC and RLG

(Research Libraries Group) to develop standards and methods for archiving

older **material**. The National Archives and other government agencies are doing similar work. NARA's Clinton Presidential **Materials** Archive (<http://www.clinton.nara.gov/index.html>) is an early effort to store Web resources from a presidential administration.

Alexa Research (<http://www.alexaprojects.org/>) appears with the tag "Page not in Archive" and a greyed-out link. One subset of the Alexa archiving covers some 87 million pages of **material** from the Election 2000 Presidential campaign (<http://archive.alexaprojects.org/>).

What Should the Searcher Do?

Long term? Become aware of the research and projects going on in this area. Offer comments and suggestions on how to make this **material** more accessible and searchable. A great archive of quality **content** without the proper mechanism to access it is not great.

Short term? Take advantage of the Google cache feature--another "Google only" resource. Each time...

...the page and identifies that it has gone. For more about the Google cache, go to <http://www.google.com/help/features.html#cached>.

Of **course**, another option is to either print-out or save a copy of a page. This can both be time consuming and a waste of paper...

...Web browser. This free resource is well worth a look.

I Still Can't Find...

General, invisible, and specialized search tools still leave plenty of **material** not available. So many types of resources to explain, so many places to search! Your boss says that last night he was at home "searching..."

...numerous databases available to them through subscription licenses, databases they can access from home.

The boss says. "Wow, I had no idea all of this **material** was available." On a roll, you also suggest that the boss check with the local public library, which you happen to know also offers access...

...should know where to turn next. In some cases, starting with Google or

Excite might not be the best idea. There is still plenty of **content** not digitized that may require a trip to a library with a print or microfilm collection containing the document they need.

What should the searcher...

```

...search/syntax
    Proximity          near (proximity operator, 10 words
                        in either direction)
                        NEAR for basic interface
    Directory          LookSmart
    Other Searches     News (content provided by Moreover)
                        Image, MP3, and Video
    Special Features   Ticker symbols provide direct links
                        to stock quote, news, SEC filings
    Comments           If the Advanced Search...

...box, result sets return in co-
                        mpletely random order. No relevancy
                        ranking algorithm is applied.
                        All pages are completely crawled
                        up to 100 k of content.
                        After that, any remaining content
                        is not searchable. Up to 4 MB of
                        links are crawled and indexed.

    Feature            Google
    URL                http://www.google.com
                        http://www.google.com/
                        advanced...stock
                        information (greater than)

    Proximity          No.
    Directory          Open Directory Project (http://
                        directory.google.com)
    Other Searches     Image Search (http://images.google.
                        com)
                        Google Groups, Usenet material
                        (http://groups.google.com)
                        Uncle Sam, U.S. government content
                        (http://www.google.com/unclesam/)
    Special Features   Translation
                        Telephone Search (U.S. Home and
                        Business Numbers)
                        Maps
                        Web page cache
                        Dictionary Definitions
                        Similar Pages
    Comments           All pages are crawled up to 110 k
                        of content. After that, any remain-
                        ing content is not searchable. All
                        pages in cache are also limited to
                        110 k.
                        Only search engine to crawl and
                        pdf content searchable.

    Web Search Engine FAQs
    Northern Light      MSN Search
    http://www.northernlight.com    http://search.msn.com
    http://www.northernlight.com/    http://search.msn.com...

...ticker: (some special    search can be achieved
            collection only)    using special syntax.
    text:                      Here are few
                                examples:

```

<p>No.</p> <p>No.</p> <p>News <b>content</b> (56 newswires)  database <b>updated</b> in real-time  Free to read for 2 weeks.  Alerts (A free service. Results  are returned via e-mail) Special  Collection (Full-Text <b>material</b>  from over 7,100 publications)  Investext, Market Research,  EIU <b>content</b> is also available.  <b>Materials</b> are purchased as needed.  The automatic creation of the  Northern Light's "custom folders"  organizes <b>content</b> by subject,  type, source, and language.</p>	<p>title:</p> <p>domain:</p> <p>linkdomain:</p> <p>No.</p> <p>LookSmart</p> <p>News Search (primarily  MSNBC <b>content</b>)</p> <p>-</p> <p>MSN uses an lnktomi  database. According  to Greg Notess,  it is one of the  largest available  from an lnktomi  partner. To identify  other lnktomi partners...</p>
<p>...pub:</p> <p>    company: (special collection                      only)</p> <p>    ticker: (some special                      collection only)</p> <p>    text:</p> <p>    No.</p> <p>    News <b>content</b>  (56 newswires)                      url.tld:</p> <p>    database updated in real-time</p> <p>    Free to read for 2 weeks.</p> <p>at</p>	<p>interface, specific syntax for  many fields was introduced  in July, 2001.</p> <p>No.</p> <p>link.extension</p> <p>url.host:            Additional                              information</p> <p>normal.title: http://www.                              alltheweb.com/</p>
<p>help/basic.html</p> <p>Alerts (A free service. Results  are returned via e-mail) Special  Collection (Full-Text <b>material</b>  from over 7,100 publications)  Investext, Market Research,  EIU <b>content</b> is also available.  <b>Materials</b> are purchased as needed.  The automatic creation of the  Northern Light's "custom folders"  organizes <b>content</b> by subject,  type, source, and language.</p>	<p>Picture Search</p> <p>MP3 Search</p> <p>Video Search</p> <p>Mobile Search</p> <p>Searching from the main  interface will also run  the search in the Picture,  MP3, and Video databases.  If results are found they  are presented in a box...</p>
<p>...smaller than the Google.com database. It does not contain links to  cached versions of pages. This database is also used to supply  "fall-through" <b>content</b> (<b>material</b> not in Yahoo's own</p>	

database). It is often found listed as "Web page" **content**.

2. Google utilizes the Open Directory Project database as its Web Directory (<http://directory.google.com>).

3. You can search stop words by placing a...

...it to function, capitalize the OR.

9. Google only crawls and makes searchable the first 110 k of a page. Long documents may have substantial **content** invisible to Google.

10. Entering a U.S. street address into the query box will return a link to a map of that address location...wp).

Ten Things to Know About AllTheWeb

1. AllTheWeb licenses its database to Lycos. The identical database is searched and makes up some of the **content** on a Lycos results page.

2. Unlike Google and AltaVista, this search engine does not have a limit on the amount of **content** crawled on a Web page.

3. AllTheWeb indexes every word. Words traditionally considered as "stop words" are searchable.

4. AllTheWeb does not permit the use...

...it finds anything, these results are linked on the right side of the results page.

9. AllTheWeb offers a search engine dedicated to Mobile Web **content** (<http://mobile.alltheweb.com>).

10. Fast Search and Transfer (FAST), the company behind AllTheWeb, has deployed its software to power the Scirus science search engine...

...One small step for man, on giant \* leap for mankind")

4. AltaVista News (<http://news.altavista.com>) is "powered" by Moreover. This continuous feed of **material** can be searched using AltaVista syntax.

5. The use of the "sort by" box on the AltaVista Advanced interface allows you to give certain words...

...7. On the Advanced Search interface, checking the "Acrobat" box will retrieve pages with links to pages that contain .pdf files. It does not search **content** "inside" these files.

8. Greg Notess points out that the same syntax available to limit Hotbot will also work with MSN Search (<http://hotbot.lycos...>

...Web Directory and Featured Link sections of the site. Although most of the time the "Featured Links" represent major MSN advertisers, editors can add other **content**.

10. Selecting and search under the MSN "News Search" tab returns results predominantly from MSNBC.

Ten things to Know About Northern Light

1. Make sure...  
...contains access to several databases not available from the main URL.

Most of these resources are fee-based. They include EIU Search and market research **content** from FIND/SVP and MarkIntel.

3. Northern Light provides FREE full-text access to a database of continuously **updating** news **content** from 56 newswires. **Material** stays in this database, available for free access, for 2 weeks. Then the **content** moves to the Northern Light Special Collection database.

4. Northern Light's Special Editions are subject specific portals that combine **material** from the "open Web" and NL's proprietary databases. Topics of Special Alerts include XML, managed care, and electronic commerce.

5. The Northern Light Special Collection currently contains **content** (fee-based, pay-per-document) from over 7,1000 sources. A catalog of these publications is available at <http://nlresearch.northernlight.com/docs/specoll...>

...to set up search strategies in ANY/ALL of the NL databases and have those strategies searched up to three times daily. If any new **material** hits on the strategy, results will be delivered to you via e-mail. I use this tool to bring me a customized feed of news via the NL News Search database. Remember, the full-text **content** is free to access for 2 weeks.

10. Northern Lights "Geo Search" provides an opportunity to search the Web with keywords and U.S. and...

...as we know and love them today, hypothetically index each page, massive amounts of data coming from just about anyone who wants to produce Web **content** and put it on a publicly accessible server.

The problem for implementation of a controlled vocabulary with this **material** is really one of creation. Who would create it? Who would maintain it? Who would do the cataloging? Would entire sites be cataloged at the...

...enforce a set of agreed upon standards. Many issues would need resolution before we could apply controlled vocabularies to make searching the massive amount of **material** on the open Web more effective.

**20011001**

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## Supplier Number: (USE FORMAT 7 FOR FULLTEXT)

### Text:

With AutoCAD 2000, AutoCAD Learning Assistance debuts a new "open-learning-environment" architecture that can funnel **content** from a Web server or intranet to a trainee's desktop. But don't count out face-to-face learning just yet-it more than...

...they are asked to learn at breakneck speed.

Fortunately for today's CAD user, the double-edged sword of technology also offers new alternatives for **training** and **education**. With the **Internet** gaining acceptance for everything from general correspondence to final product delivery, many computer professionals are finding the World Wide Web a convenient educational platform. Information...

...based learning. With AutoCAD 2000, the company released a modified version of its Autodesk Learning Assistance system that allows end users to add their own **content** to that provided by Autodesk. After installing the system using the ALA CD-ROM that ships with AutoCAD 2000, users can arrange information from text, graphic or animation files and display it on screen just like the Autodesk **material** shown in Figure 1.

Possible uses of the open-ended system include placing company drafting standards or suggested procedures for certain tasks in files accessible...

...displayed in the menu along the left side of the screen, as shown in Figure 2.

The new ALA system "is a vehicle that handles **content** from many sources," says Jimm Meloy, Autodesk's worldwide director of Learning and Training. "The customer doesn't know where it's coming from" because...

...the system includes a "Try It" link that allows a user to launch an application and try out a help technique live, with the help **content** still displayed on the screen. While this feature is primarily intended for users to launch AutoCAD, it can also be used to launch any other application, such as Microsoft Excel or Word, and demonstrate concepts covered in custom help files.

The main **content** files, or volumes, are written in hypertext markup language (HTML), but users don't have to be HTML experts to create **content**. The files furnished on the ALA CD can be copied and edited in a word processor to reference user-defined text, graphic or multimedia files...

...events and mentoring, Autodesk intends to use electronic-conferencing technology developed by PlaceWare Inc., Mountain View, CA (www.placeware.com) The PlaceWare platform combines visual **material** delivered over the Internet with synchronous **audio content** delivered via telephone. "It's essentially a conference call supplemented with a graphic display," says Meloy. PlaceWare has also provided Web conferencing for a variety...

...Contigo Software Inc. (www.contigo.com) and WebEx Meeting Center from

Active Touch, Inc. (www.activetouch.com).

Reseller Training

Autodesk is also increasingly employing the **Internet** to **train** and communicate with its resellers. The company has teamed with San Mateo, CA-based Eloquent, Inc., to deliver new product information to its North American...

...with five interactive multimedia events, as shown in Figure 3. Autodesk

plans to expand its reseller sales program by creating additional events

and placing the **content** directly on the Web for easy **access**.

"**Before** we implemented this solution, resellers had to invest tremendous time and money to stay up-to-date on new product information,"

says Lisa Stark, Sales...products and marketing strategies." While Eloquent's events do not feature real-time idea exchange and collaboration,

the company's "rich-media" solutions enable synchronized **audio** and video streaming that allows users to start and stop sequences and scroll

backward and forward without restarting the entire clip.

User Groups

The Autodesk User Group International (www.augi.com) has also been

active in **Web-based training**. For over six years, the organization has sponsored the AUGI Telecourse Program (ATP), an interactive series of **courses** taught by volunteers on a variety of topics ranging from general AutoCAD to industry-specific applications. All

telecourses require AUGI membership, which is now available...

...per year. While the full membership includes a productivity CD, a newsletter and other fringe benefits, the Web membership includes full access to the ATP **courses**.

AUGI also recently introduced the ATP Mail List, a contact list for

interactive discussion between students and teachers on the telecourse **content**. "It provides a better mechanism for contacting students and teachers," says Donnia Tabor-Hansen, secretary-treasurer of AUGI. She says

ATP participation has grown steadily, but she does not see **Web-based courses** replacing classroom **training** anytime

soon. "People still like the personal contact," she adds, noting that some of the best idea exchange occurs between sessions at conferences and seminars.

#### Classroom Experience

For those seeking classroom CAD training, a variety of options are available. More than 900 Autodesk Training Centers worldwide provide short

**courses** and **update** sessions for a variety of skill levels.

Some centers are located at colleges and technical schools, while others

are operated by private training companies. All ATCs are certified by Autodesk, and offer AutoCAD **courses** at Levels I and II, for the beginning and intermediate users, respectively, along with **update courses** for various releases. **Courses** in AutoCAD LT are also offered, along with specialty **courses** in architecture, engineering and construction (AEC) and mechanical applications.

In addition to the human interaction, instructor-led training offers

a more structured environment and consistent...

...tend to do better with a scheduled class," he says. In addition to offering AutoCAD classes, as shown in Figure 4, RRTC develops its own **courseware** and sells it to other ATCs. One change Dean has noticed is that training **material** is becoming more modularized. "People want information in smaller chunks," he adds.

Some companies also look to Autodesk dealers for training. More than 4,000...

...s still a need for the classroom experience and the interpersonal connection," she adds. At Carnegie Mellon, Kurland has taught both traditional and Internet-based **courses**, which have been gaining popularity at colleges across the country. She recently built a Web-based

class for physicians on using geographic information systems and asset management. In addition to providing **course material** over the Internet, she videotaped the lectures to maintain a human element.

"It's a

more structured **course** (than a video training tape), and it also allows interaction," she says.

#### The Old and the New

Many early GAD users essentially "toughed it out viable today, with

the process aided significantly by online help and an abundance of books

available at bookstores and **online**. Many companies still prefer to **train** their employees in-house through custom-built classes or informal on-the-job training. And some use the "ask-a-buddy" approach, where users accomplish...

...for its electronic-based education philosophy. The souped-up Autodesk

Learning Assistance is one of several components to the company's "four-square" approach to **training**, with **Internet**-based events, discussion and mentoring rounding out the fundamental pillars. The

e-Learning approach is being adopted since less than 20 percent of CAD

professionals...

...to go this way," adds Steve Elliot, the company's Instructional Design and Technology manager.

The American Institute of Architects, meanwhile, has launched eClassroom, a **distance education** program that features sessions from its annual national convention. The multimedia lectures are supplemented with hot links to additional resources, handouts, discussion groups and a quiz. Students can earn learning units (LUs) and fulfill AIA continuing education requirements from enrolling. Members pay \$19.95 per **course**, while non-members pay \$29.95.

**Course** topics in the AIA eClassroom range from design and construction to business management and technology areas, as shown in Figure 6. Enrollees register online at the AIA Web site ([www.e-architect.com/conted/eclassroom/](http://www.e-architect.com/conted/eclassroom/)) and receive an ID number that allows access only to specific **courses**, which are available 24 hours a day, seven days a week.

Colleges and universities are also embracing the e-learning concept. The Atlanta-based Southern Regional Education Board established the Electronic Campus in 1998 to offer college programs and **courses** through a variety of delivery methods, as shown in Figure 7 ([www.srec.sreb.org](http://www.srec.sreb.org)). Originally offering approximately 100 **courses**, the campus now includes nearly 2,000 **courses** and over 70 degree programs from more than 175 colleges and universities. All **courses** are offered by accredited institutions in the 16 SREB states and meet a set of mutually agreed-upon standards. The Electronic Campus also recently added...

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**Supplier Number: (USE FORMAT 7 FOR FULLTEXT)**

**Online CPE Rides the Learning Curve.(Internet/Web/ Online Service Information)**

**Text:**

Usage is soaring due to "byte-size" **courses**, package discounts.  
...director of national accounting and auditing training for Deloitte &

Touche, is no fan of what he calls "the Everything You Always Wanted to Know-type" **courses** that have been too readily available from Continuing Professional Education providers.

A new accounting recruit "doesn't necessarily have to know every nuance about FASB 123" but might be better served with a briefer, more general introductory **course**, says Mitchell, who selects programs for inclusion in the Deloitte & Touche "virtual university" used by the firm's professional staff. Besides, "No one can sit in front of one of those (computer) screens for eight hours at a time."

Mitchell therefore welcomes the trend toward shorter online **courses** where the emphasis is on a more gradual educational process of Basic-, Intermediate-, and Advanced-level **courses** "so you can step your way through" a particular topic.

That trend will be moving into high gear in June when the American Institute of...

...mass of nearly 1,200 hours," notes Chuck Peck, AICPA's senior vice president for marketing, product, and organizational development.

Roughly three-quarters of the **courses** will be one hour in length; the rest will be two hours.

"This really is how people learn," Peck says of the shorter **course** format. "You can do bookmarks on an eight-hour program, but it's tougher."

The AICPA will be offering members an annual buffet-style, all...

...a flat \$795 fee, with a potential cost of less than \$2.50 per credit hour.

More limited package deals are also common. Self-study **courses** from Stow, Ohio-based WiseGuides normally retail for \$12.50 an hour.

But a one-year Individual Plan for 20 CPE hours goes for \$129...

...enrollment at the College for Financial Planning in Greenwood Village, Colo., observes, "Our pricing structure has remained the same at \$15 a credit hour, with **course** packages and discounts available that reduce the price to as low as \$4.71 per credit hour. Obviously our CPE packages are quite popular due to the significant discount." Online **courses** are provided through the College's CPEInteret division.

There are even multi-year packages. Marina del Rey, Calif.-based eMind.com (formerly Yipinet) has one-, two-, and three-year subscription deals for unlimited access to its 75 accounting **courses** for \$495, \$895, and \$1,195, respectively. "Those are very popular," says marketing director Jennifer DeVore.

Accounting professionals are paying attention to this pricing trend.

Jim McDonald, chief financial officer for Seattle-based Janeros, which provides products and services to medical professionals, took his first online MicroMash **course** last October. He has taken nine more **courses** since, purchased one at a time. "But I would definitely now look at (a package deal) if there's a good price," he says.

Buyer...

...fulfill credit requirements, online CPE has indeed become a buyer's market as new providers enter the field and established suppliers add scores of new **courses**.

Besides the AICPA, relative newcomers to Web-based CPE include Pryor, Okla.-based Learn2.com (approximately 130 titles) and Leander, Texas-based Positive Systems (roughly 80 **courses**). Established vendors, meanwhile, are beefing up their portfolios. Pro2Net, for instance, expects its roster of accounting **courses** to nearly double to 400 or so by year-end, according to Doke. And eMind.com also has aggressive expansion plans. With roughly 100 accounting-related **courses** currently in the catalog (including **courses** on information technology), "The number we're shooting for at the end of June is about 150," says DeVore.

Will AICPA's fixed-price smorgasbord approach to online CPE drive prices lower? Lynda Denlinger, co-owner of Positive Systems, which provides about eighty online **courses**, says of the AICPA initiative, "We're certainly going to keep our eyes and ears open." But she's not at all persuaded that a...

...start standardizing your prices, you're really limiting yourselves on the number of promotions you can offer customers," she says.

A four-credit online PSI **course** typically retails for just under \$60, but the company frequently has two-for-one promotions, 10 percent discounts for 24 hours of CPE bought within...

...customers) with better savings" by having some pricing flexibility, says Denlinger.

Unlimited CPE also may not be such a benefit if the supplier lacks a **course** the customer needs. "One of our biggest concerns is customer service," notes Denlinger, whose company has referred clients to a competitor when PSI didn't carry a requested **course**.

Doke concedes there may be some pricing pressure. "There's always a handful of individuals who just want their hours," and will shop around for ...are adamant about getting their tuition's worth. "I'd venture to say that (online CPE) prices may increase," he says. "It comes down to **content**. **Content** is king in this industry."

Even if prices creep up, it remains likely that online CPE will be viewed as a bargain. Just ask Ron...

...access doesn't mean they will go to the Internet." To encourage members to try online CPE, the AICPA deliberately adopted one- and two-hour **course** formats that would lend themselves to self-study in a single sitting.

Other vendors have come to the same conclusion. Fort Worth, Texas-based Practitioners Publishing found that many CPAs are still not

completely at ease with the Internet, but "Normally they will stay online to complete shorter **courses**," says CPE director Winford Paschall. Consequently, while PPC University **courses** range from one to six hours, most are two hours.

For many vendors, though, four- and eight-hour **courses** remain the norm. This has led many users to download **courses** to their own PCs in order to take them as their schedules permit. To counter this, most online CPE providers have segmented their longer **courses** into discrete chapters or workshops, each followed by review questions, to make the process less formidable. Also, many of the online programs now allow users to save their place in the **course**, letting them pick up wherever they left off.

Englewood, Colo.-based MicroMash has taken this process a step further, allowing users to earn partial credit for a **course**. For example, if a user is only able to complete half of an eight-hour **course**, he or she may still earn four credits for the work done. Users welcome this incremental **course** structure. "It's easy to use in bytes that work," says Janeros' McDonald.

At this point, downloading is still an enormously popular option. WiseGuides chief executive Andy Rosenberg estimates "maybe 80 percent of our customers" download **courses** onto their own computers. "They say they don't want to tie up their phone lines," he explains. True online CPE will gain momentum, he...

...well as over the Web, a "little over half" of revenues now accrue from Internet sales, according to Denlinger. Of that figure, 39 percent represents **online training** (wherein users can save their **course** work and return to it later if necessary) and approximately 11 percent represents **courses** that are downloaded.

24 x 7

Another huge selling point for online self-study is its round-the-clock availability. As Merideth Olson, marketing director for Learn2.com, notes, "Because of the busy schedules CPAs possess, finding the time to take CPE **courses** is very limited." The Internet is enabling accountants to access **courses** "from the convenience of their own home, office, or on the road for a fraction of the cost of classroom training."

Suzanne Kump, director of...

...a Pro2Net customer--shares this view. "Online CPE meets the needs of an organization where associates travel, (or where they) may want to take a **course** in the office or in the comfort of their home," says Kump.

In recent years, accountants have flocked en masse to the Web to pick ...

...come up against their reporting period and they realize they're a few hours short." In a matter of hours, they can log onto a **course** or two, take them, and receive a certificate of completion. "They like the immediacy," notes Paschall.

Several CPE providers now allow customers to **access course material** for up to a year **after** completing the work. This is enabling accountants to brush up on topics shortly before meeting with clients or colleagues, thereby enhancing their professionalism.

This immediate...

...Ethical Issues for the Investment Professional" (CPEInternet). Users appreciate the timeliness. "I can't tell you how many times I've gone to a tax **course** and they're using outdated **materials** because the laws have changed," remarks Reed. In contrast, online **courses** are "always up-to-date."

Online CPE also is benefiting from ever-improving graphics. Rosenberg points out, "Users don't like reading line after line...

...that the user can click on for definitions or more thorough explanations.

MicroMash recently introduced a new generation of browser-based CPE products that include **content**-specific animation, keyword search capability to facilitate **course** review, and online access to supplemental study **material**. "We've added graphics to enhance the text," says sales vice president Samuel Goble, noting the addition of more charts and graphs. It's "very...for the widespread use of streaming graphics and video to make online CPE more of a multimedia experience. But vendors are proceeding warily.

Some AICPA **courses** will employ streaming technology and flash animation, according to Robert Edgar, vice president of product development for Iconceptual, the Institute's CPE technology partner. But...

...realize the important thing here is not to have bells and whistles, but to deliver the necessary information."

PPC University has developed four two-hour **courses** using non-streaming **audio** and animation, which at \$49.95 retail at twice the cost of a standard CPE **course**. "We are considering streaming for future **updates**, but those **courses** are a lot more expensive to develop," notes Paschall.

Pro2Net has four multimedia **courses** in its online catalog, and plans to add another twenty this month. "By nature, most people are hands-on when it comes to learning, and...

...ready."

He concedes the infrastructure is not in place yet. "A lot of accounting departments are in cubicle settings," where someone's taking a CPE **course** with **audio** could be disruptive. In fact, lots of

PCs currently in use can't accommodate sound cards with speakers. Nor can many offices or homes currently...

**Product Names:**

\*4811529 (Online Services NEC); 7372705 (Computer Training Services (Contract))

**Industry Names:**

20000401

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**Supplier Number: (USE FORMAT 7 FOR FULLTEXT)**

**Text:**

Companies such as InterTrust and IBM have developed digital wrappers that prevent users from accessing or distributing protected **content** unless they have paid or obtained permission to do so. These kinds of systems are persistent; that is, even once an authorized user opens the wrapper, anyone to whom they pass along the **content** will also have to get permission to see it. The technology is granular enough to control access based on time limits, on the number of views or uses of a piece of **content**, or on the way in which **content** is used (a vendor may give permission, for example, to view an image but not to print it). ...with consumers. According to Inclusion's John Duhring, "the most successful sites have created a sense of trust with their audience. They offer people relevant **content** that meets their needs. They don't waste people's time, or treat them as 'information receptacles'." When people use a two-way medium, Duhring...

...heard from executives at several major Web development firms, is that the Web will eventually collapse into something resembling television—not in terms of the **content** offered or the relationship that publishers establish with viewers, but rather in terms of a handful of major **content** "networks" totally dominating the consumer market. According to this **view**, most consumer publishers will have **two** options:

find a niche providing **content** to the big players, or scrape out a barely-profitable existence serving free **content** alongside a mob of GeoCities-style home pages.

That's a profoundly downbeat view, and it isn't a fair reflection of just how young...

...Revolution

High-speed Internet access is a revolution in the making for the Web.

For most home users, however, and for Web publishers who create **content** for the consumer market, it's a revolution that will be a long time in the making. According to Ken Locker, the managing director at

...

...before high-speed access becomes standard fare for home users.

Early opportunities. Given this caveat, where can Web publishers get

an early start developing broadband **content**? First, Locker said, publishers should look at firms that provide **distance learning** and **training** programs for academic and corporate clients. Many schools and businesses already have high-speed access, and

Locker believes that both markets are ripe for publishers that can provide the right kinds of **content**.

Locker also believes that publishers will see another early opportunity in hybrid applications that combine DVD and Web-based **content**. As the number of PC-DVD players grows, Locker says, publishers will want to combine DVD-based video and multimedia **content** with an **updated** stream of complimentary online **content**. Locker pointed out that Warner Brothers, for example, is developing an episodic program that combines DVD and Web **content** to give users a much richer experience than they would get with a Web-only product. In order for users to access the **content** on the dvd, they will have to visit the Web site, giving Warner Brothers the opportunity to sell advertising, hawk subscriptions to premium **content**, or some combination of the two.

This isn't a new idea; previous attempts to combine CD-ROM and the Web

fell flat, and there...where to buy the jacket online."

Broadband Internet access, Locker said, will also require developers

to offer new user interfaces better suited for nonlinear multimedia **content**. Search tools, for example, will need both the user interface and the technical chops to index and retrieve video, **audio**, visual and spatially organized **content**. This new breed of applications, Locker maintains, "will be the DOS of broadband: They will provide the core functionality that takes inaccessible **content** and makes it useful."

Locker's firm has already looked at a number of new technologies that are well-suited for broadband environments, some of...

...Lucent and AT&T, will allow users to search a video stream by indexing closed captions and using visual cues such as fadeouts to generate **content** reference points. For **audio content**, the system will automatically generate full-text indices by using the same voice recognition technology that AT&T now uses in its long-distance service. "Imagine, for instance, being able to search all of the **content** on C-SPAN for a particular word or the appearance of a particular individual." Right now, doing this would require a user or a transcriptionist...

...text transcript on the fly.

These systems are also important to publishers that will need new ways to track and manage vast repositories of digital **content**. Even if a publisher can't yet deploy certain kinds of **content** on the Web, it makes sense to keep track of this **content** so that it will be available in the future. As a new generation of digital asset-management systems come into the market, publishers should keep...

...which has languished on the Web, may also get a new lease on life. According to Locker, some music publishers are already working on enhanced

**audio** CDs that include VR navigation software, allowing users to load the software from the cd and then visit online shopping arcades that use the software to guide the user through the site. Here, too, developers that pursue hybrid **content** projects will be better prepared when the bandwidth exists to create this kind of **content** entirely on the Web.

Micropayments: Solution, or Just Another Problem?

It has been suggested that the problem with selling **content** online isn't the money itself, but rather the amount that people are required to spend. Right now, paying for **content** usually means buying a subscription. And it's now clear that while people are still perfectly happy to buy subscriptions to a cable TV services or print publications, they're less eager to spend their money subscribing to **content** on the Web.

One solution to the problem is to charge much smaller amounts for more granular "chunks" of **content**—an individual article, for example, or one play of an interactive game. Traditional credit cards can't handle these micropayments, because any transaction less than...

...been used to responding to the package of information rather than the contents of the package." And that, he thinks, will deter people from buying **content** long after the micropayment systems are up and running.

The State of the Standards

Once upon a time, the tools of the Web trade consisted...Web publishing standards have evolved into a complex, powerful and often confusing array of methods for structuring, formatting, manipulating and delivering every imaginable form of **content**. Here's a quick look at what lies ahead for the standards that hold the Web together.

XML: The hype continues. It's easy to...

...0 than about moving full-bore into the Next Big Thing. It's also clear

that HTML is still perfectly adequate for many types of **content**, giving designers some good reasons to leave well enough alone.

Already, however, XML is proving itself on the server side as a way to generate metadata, to assist search and indexing operations, and to allow

**content**-management systems and databases to work more efficiently. XML is also giving vendors a foundation for describing vector graphics formats, a multimedia integration language (see below), **content** distribution and syndication (ICE), and a data interchange format for databases (Microsoft's XML-data proposal). Over the next year, the W3C will also introduce...

...any other XML implementation, the next-generation HTML will rely on transformation tools such as style sheets, scripts or external applications

to manipulate and format **content**, rather than pressing the markup itself into service to perform these tasks.

A model standard. Straightening out the markup is only one piece of the...

...approved several months ago, already enjoys a high level of vendor support for its positioning syntax, which allows designers to precisely position text and other **content** on the page. The **revised** standard also supports downloadable fonts, giving designers more control over typography.

CSS2 offers two other major improvements. The standard now includes syntax for "paged media...

...media, giving them a way to optimize pages for particular screen sizes and special needs, such as output to a Braille reader or text-to-**audio** browser.

Graphics and multimedia. Designers have long complained that the Web needs a vector graphics format that doesn't rely on plug-ins, and within...

...The Synchronized Multimedia Integration Language (SMIL), which the W3C

approved last June, gives developers a simple, text-based syntax for synchronizing different types of multimedia **content**. RealNetworks quickly endorsed SMIL and added support for the standard to its next-generation streaming media platform. Microsoft has refused to support

SMIL, however, claiming...publishers can draw any conclusions at this nascent stage of Web publishing, consider these a good start:

Understand the power of the Web as a **content** distribution

medium. What consumers see matters far more than where they see it; smart syndication arrangements with the right partners can be just as effective as attempts to build and market a high-profile Web site.

Exploit ties among **content**, commerce and services, either independently or in conjunction with other firms. These partnerships (or sponsorships, if you like) can throw publishers into some unfamiliar situations...

...relationships and how far to pursue them. Understand the limits, but also understand that these arrangements may be the only way to support an online **content** operation.

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### **Supplier Number: (USE FORMAT 7 FOR FULLTEXT)**

## **Interactive Distance Learning Puts College & Corporate Classrooms Online**

### **Text:**

In the past, **distance learning** has taken the form of traditional correspondence **courses** via regular mail, or **audio** or video broadcasts or conferencing. Throwing in the word interactive brings to mind computer-based training or educational CD-ROM titles. Now, with the Web as the delivery mechanism, interactive **distance learning** is the concept and asynchronous **Web-based training** is the buzzword. That is, non-realtime interactive **educational courses** developed for computer delivery via **Internet**, intranet, commercial, or private networks. You know, Web School. The trend toward interactive **distance learning** could spell big opportunity for developers. Indeed, interactive **distance learning** (IDL) has become one of the fastest growing sectors of today's \$8 billion education technology market. It's a trend that's projected to be...  
...and as corporations struggle to remain competitive by keeping their employees and clients up-to-date in a world of rapid information and technological turnover, interactive **distance learning** provides some compelling answers. The Web-based environment is scalable and facilitates fast-changing **content**, class interaction, and

evaluation of achievement. The Web's asynchronous nature solves another dilemma. Whether they're at the local K-12, post-secondary campuses...

...time, no hard numbers are available to indicate how many public and private institutions offer IDL. Peterson's Virtual College estimates about

2,000 accredited **distance learning** programs or **courses**

in the United States. So, of the approximately 3,300 accredited American

colleges and universities overall, about two-thirds offer some form of virtual learning. However, that number is qualified by the American Council

of **Education's** broad definition of **distance learning**,

which includes all types of delivery: computer networks, video, satellite,

etc. Perhaps a better indicator of IDL's popularity is a claim in Forbes' magazine...

...at speeds 100 times greater than that possible on today's Internet -

should allow more deployment of IDL projects, such as education on demand,

multimedia **courseware** including high-quality video, desktop

videoconferencing, and digital libraries. Tele-immersion will also become

available. Tele-immersion significantly changes education, scientific, and

manufacturing paradigms by...

...by an order from the governor in April '97 and in design through August

'98 is the California Virtual University (CVU). Offering centralized access

to **course** listings and related services, CVU is planned as a comprehensive virtual catalog of the state's 106 community colleges, 164

independent colleges and universities, 23...

...That's a critical mass of more than 300 accredited post-secondary institutions, all within one state. If each school eventually offers a modest 30 **courses** each, that's 9,000 titles and related classes.

"This is going to be a very competitive market globally," says Joe

Rodota, deputy chief of...

...UC Extension Online (UCEO), a collaboration between The Center for Media

and Independent Learning (CMIL) and the University of California at Berkeley Extension, offers 40 **courses**. Just under half apply to certificate programs. UCEO is Internet-based but currently only available

on AOL's Learning & Culture channel. A parallel connection allowing...

...a dozen western states including Alaska and the territory of Guam. The

Denver-based group plans to start by listing its participating school's online **courses** in the summer of '98. Later it plans to offer

**courses** itself.

#### Corporate **Courses**

In corporate environments, high-tech companies are leading the way.

Major firms such as Sun Microsystems, Oracle, and IBM all have advanced programs in place...increasing amount of corporate partnership programs like those at schools such as MIT and Stanford University. In this model,

the school offers degree-oriented IDL **courses** to qualified company-sponsored employees. The students' employers pick up the tab for their tuition and help subsidize the overall program through dues and/or...

...the Stanford Center for Professional Development (SCPD) is its IDL division, the Stanford Online project. Let's start with the SCPD. It offers

graduate level **courses** in engineering and computer science to corporate partners such as Intel, Hewlett-Packard, Oracle, and General Motors as well as regular Stanford students. Over 5,000 professionals from

more than 180 companies at 250 sites in the United States and abroad enroll

in more than 200 Stanford **courses** each year. The recently launched Stanford Online project will offer 15 of these **courses** in the fall quarter and is ramping up to offer the entire SCPD program eventually.

Stanford Online project software incorporates video with **audio**, text, and graphics for on-demand delivery over the Internet. Video and

**audio** segments of each **course** are currently digitized and compressed in either QuickTime or Vxtreme formats. Developed at Stanford,

Vxtreme is a commercially available video streaming technology supported on Windows...

...the corporate education division of Sun Microsystems. It's primarily made up of regular on-site campus classes, but it also has a virtual interactive **distance learning** section.

Since all of Sun Microsystems' revenues come from products with an

average age of 18 months or less, rapid delivery, updating, and end user

evaluation/feedback are essential elements of a **training** system for employees. **Web-based training**, as Sun University director Jim Moore refers to IDL, solves that information need.

Although he

calls **Web-based training** (WBT) a flawless format so

far, Moore doesn't think it will ever replace real classroom training in

certain areas such as leadership and management development where mentoring

plays a significant role.

With more than 70 modules of **Web-based training**

**online** so far, Sun's virtual program has become a priority in the last year, facilitated by the popularity of Java and increased bandwidth on

their...

...from the public, Sun U's intranet is used to deliver WBT to employees' desktops (usually decked out with Sun workstations) throughout its worldwide offices. **Courses** are available in appropriate foreign languages for Sun's more than 20,000 employees. High-end video-based **courses** are the norm. When bandwidth hampers video-based **content** transmission **between** distant offices -- Mountain View, California, to Munich, Germany, for instance -- slow-speed coded video is downloaded to the end user's media server ahead of time. **Course** developers use Java applets to facilitate interactivity with HTML, such as avoiding static, boring pages by animating text to direct the user to the next...

...past, the real hang-up about the Web (rather than CBT) was the lack of interactivity. But with Java, we now are able to make **Web-based training** just as interactive as CBT," says Moore. "WBT **course** developers can load the little Java applets on the Web site that makes it interactive, and they can interact with the student. They can have...

...relationship between how much a given salesperson knows and how much revenue they produce -- in other words, whether or not their knowledge pays off. Of **course**, the desired ratio is that the ones who know the most sell the most. So far, early returns at Sun U are promising.

Administrative Efficiency

All **courses** for Sun U's traditional and virtual classes are listed on the Web in an electronic catalog. Says Moore, "I dumped all of our paper up for the class, their manager gets notified, the instructor receives the student's name, the student is shipped all the pre-**course materials** as well as follow-up **materials** after the class. The electronic catalog stores the evaluation, and most importantly for Moore, it bills their organization for the cost of attending the class...

...be employable in the future," Moore says.

"I think it's important not to approach education from a product perspective. Just having particular products or **courses** online isn't where we're coming from. We're looking at performance in jobs and what does it take to perform in a job, not how do we get more standalone training products available to people. We're trying to do a better job of integrating **courseware** with curricula that says, 'Here are the steps,' as well as integrating all of it with the processes that you use on the job."

SFSU...

...in multimedia. Launched in the fall of '96 with five classes, MSP Online plans to launch eight more for the fall semester of '97. Current **course** titles include Demystifying Multimedia Technology, Designing

the Interactive Experience, and Introduction to Director 5.0. Nationally recognized Continuing Education units are awarded for each completed...

...are available to students with English literacy from remote locations around the world interested in pursuing studies in multimedia. To go beyond offering text-based **courses**, MSP Online suggests that students have the following equipment: a computer with speakers, 24MB RAM supporting a browser, a 256-color display, and a 28...

...as well as track the site's general traffic. Each machine has dual T1 line connections running at 1.5Mbps per line.

All classes feature **audio** lectures, animations, illustrations, and video. Instructors answer email questions, participate in bulletin board discussions, and evaluate **course** assignments. Live chat sessions allow students to interact with each other and with teaching assistants during scheduled hours each week. Tech support is available from ...

...addition to being practical features, all of these elements are essential in creating a sense of place and community, potentially absent from any virtual campus.

#### **Course** Development

**Course** development begins with a discussion of the design of instructional goals by the MSP **Online Learning** Objects team and instructors. "Then we co-develop the class in terms of scripting and **content**. This results in a **course** shell. From the shell, we prepare all of the media," explains Jasper Stuetel, director of production and instructional design.

"An editor reviews the script," Stuetel...

...but we use our Informix/Illustra database and Informix Web Data Blades."

The development process of a class takes close to three months, on average.

**Course** authoring is done on Power Macs (7500s to 8500s). MSP Online has found the Apple platform the best choice for integrating all the school's necessary authoring formats. Commonly used applications are drawn from the Adobe and Macromedia suites. Macromedia Director has been used for Shockwave animations. **Audio content** -- such as instructors' voices -- is prepared with Sound Designer and Macromedia SoundEdit 16, and then compressed with RealAudio. Media 100 is used for video production. Their database -- and most programming -- is C-based.

To manage **content**, MSP Online uses the Informix/Illustra database. Thanks to a little customization by in-house programmers that

allows back-end access, instructors can **update** class **materials** whenever necessary from anywhere in the world. By going into a special academic URL and then an edit version of their **course**, they can make instant changes to both **material** and layout.

While comprehensive tool suites from such industry monoliths as Adobe and Macromedia populate Christopher Marler's workbench, the MSP Online Internet systems manager...

...are almost always coming from the small companies. Large companies are always looking for big answers, comprehensive solutions," Marler says.

"So, if you view preparing **content** for **distance learning** as sort of a niche, you're more likely to get the answer from somebody who's small and really focused on that particular need, than from a large company that's looking for much broader authoring solutions. Or a company that's looking at all kinds of different dynamic **content** delivery uses for their database systems, rather than just specializing in **distance learning**."

Technical challenges continue beyond **course** development. "After we've developed the **content**, we have to integrate it into the university system in general," Marler explains. "Online registration isn't just a matter of taking an encrypted credit... ..that easier down the line because we're making up a lot of this as we go."

Defining the IDL Model

"While you can bunch **distance learning** together as a general topic and see that it's very broad, that topic encompasses all kinds of different models," Marler says. "Most of what's implemented now is just an extension of your standard correspondence **course** model. Except instead of the Pony Express that they used in 1890, now we send **materials** back and forth by email. Now everyone's looking into what interactivity you can get. And it's not clear yet how supportable all of...

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7/K/24 (Item 1 from file: 148)

DIALOG(R)File 148: Gale Group Trade & Industry DB

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...this issue have been shortened. Please see our website for the complete articles.

\* In This Together, video, 2001, 18 mm., Media Partners Corporation, \$895. Other **material**: leader guide, employee workbook (10 copies), opinion survey (50 copies), reminder cards.

The promotional **material** for In This Together promises 'an engaging look at harassment and respect.' In this case, the marketing copy actually approaches reality.

The tape is engaging, and the **content** strikes a healthy balance between reciting the by now familiar rules about harassment and reminding us that the underlying issue here is respect. It takes...

...procedures.

The leader guide has a brief and simple framework for delivering the video training. Most of it is taken up by guidelines and resource **materials** for certifying that harassment training has taken place and for investigating harassment complaints.

Recommendation

Brief, attractively produced, and modestly hip, this video tells employees the...

...tmreview.com) is editor of Training Media Review

In This Together product rating

Holds viewer interest	***
Acting/Presenting	***
Diversity	****
Production quality	*** 1/2
Value of <b>content</b>	** 1/2
Instructional value	** 1/2
Value for the money	** 1/2
Overall rating	** 1/2

\* It's Not Just About Sex Anymore: Harassment and Discrimination in the Workplace, video, 2002, 17min VisionPoint Productions, \$795. Other **material**: leader guide, participant **materials**, self-study workbook.

The good news is that this video initiates a conversation about harassment that is broader than gender. The bad news is that...

...the workplace.

It's Not Just About Sex Anymore product rating

Holds viewer interest	**
Acting/Presenting	**
Diversity	** 1/2
Production quality	*** 1/2
Value of <b>content</b>	* 1/2
Instructional value	* 1/2
Value for the money	* 1/2
Overall rating	* 1/2

\* Patterns, video, 2002, 62 min. (3 tapes), Quality Media Resources, \$1,187.50. Other **material**: facilitator guide, reproducible handouts, PowerPoint slides, CD with facilitation **materials** in PDF and Word formats. Also available on DVD.

Patterns approaches the topic of sexual harassment as a behavioral issue. It reviews ways to prevent...

...caution I have concerns some problematic statements in the video.  
Patterns product rating

Holds viewer interest	****
Acting/Presenting	*** 1/2
Diversity	****
Production quality	****
Value of <b>content</b>	*** 1/2
Instructional value	*** 1/2
Value for the money	*** 1/2
Overall rating	*** 1/2

\* A Policy is Not Enough, video, 2000, 17 min., Edge Training Systems, Inc., \$595. Other **material**: leader guide, participant guide.

This video opens with a female employee checking her email. She becomes visibly upset as she reads the contents of her inbox. Some of it contains sexual **content**. A co-worker stops by her desk to ask what is wrong. They have a discussion around the fact that someone in the legal department...

...Is Not Enough product rating

	Reviewer 1	Reviewer 2
Holds viewer interest	***	** 1/2
Acting/Presenting	***	***
Diversity	*** 1/2	*** 1/2
Production quality	****	***
Value of <b>content</b>	****	* 1/2
Instructional value	****	* 1/2
Value for the money	****	**
Overall rating	*** 1/2	**

\* Preventing Harassment, Promoting Respect, video, 2002, 3 min., Edge Training Systems, Inc. (800-476-1405, [www.edgetraining.com](http://www.edgetraining.com)), \$295. Other **material**: none.

This engaging three-minute film can be used as a primer for harassment discussions. As it is fast paced, the viewer is sure to...  
...belabor its points.

Preventing Harassment, Promoting Respect product rating

Holds viewer interest	*** 1/2
Acting/Presenting	*** 1/2
Diversity	*** 1/2
Production quality	***
Value of <b>content</b>	***
Instructional value	***
Value for the money	*** 1/2
Overall rating	***

\* Preventing Sexual Harassment, **online training**, New Media **Learning**, \$1,995 per site license.

Because it's primarily text and is HTML based, Preventing Sexual

Harassment can be as current as the last relevant...

...enrichment options. There are excellent sections of advice written specifically for each gender, an unusual feature. A helpful glossary provides definitions of unfamiliar terms.

The **content** is excellent and, as you would expect, up to date. All the basics of sexual harassment are covered adequately. This isn't an in-depth **course** on legal cases, changes in laws, etc., however.

Recommendation

New Media **Learning's** **course** is a good **online** alternative. It's easy to use, provides adequate, accurate information, is easily customized, and is reasonably priced. It features individual learning paths and thoughtful questions...

...management educator for a health care system.

Preventing Sexual Harassment product rating

Holds user interest	** 1/2
Production quality	***
Ease of navigation	****
Interactivity	**
Value of <b>content</b>	****
Instructional value	***
Value for the money	***
Overall rating	***

\* Preventing Sexual Harassment, online, 23 mm., PlayBack Media, \$125 per student per year for subscription to library...

...Do you or your organization believe the Internet can be used for television? The answer will lead you to decide whether to investigate the

PlayBack **course** library.

Playback provides **online** streaming video **training courses** primarily in soft skill areas. The library **content** focuses on professional development, compliance training, management, communication, leadership, and finance. The **courses** follow a standard format of introduction, vignette, and summary. A few times during

the vignette, a pop-up box will appear with a **content**-related question for the student. In addition, each **course** has a transcript, reference **materials**, summary quiz, and **course** evaluation.

Preventing Sexual Harassment presents what constitutes illegal sexual harassment in the workplace and how to recognize and avoid it. It discusses what to do...

...actors and experts are effective. The pop-up and summary questions tend to be simplistic. Many people could probably answer them correctly without viewing the **courses**.

Now let's go back to the initial question: "Can the Internet be used

as TV?" When it works, it can be effective; when it doesn't, it's a mess.

**Two** of the four times I **viewed** the **content**, I experienced poor streaming. One time it was off just a couple of frames, but it's very distracting and hard to focus when mouths are moving out of synch with sound. A second time I viewed a vignette, the **audio** came in fragments. The videos have running text below them so I was able to get most of the **content** even though the **audio** cut in and out. The third and fourth times, it worked perfectly. Because I use a cable modem, I am not bandwidth challenged. Therefore, the Internet as a delivery mechanism remains problematic because it just isn't fully reliable or stable.

#### Recommendation

I could see this **content** appealing to employees who prefer to receive information through visual images as opposed to text. As long as learners are willing to work through the technological challenges and will not be frustrated with problems of streaming video, this presentation method could be more appealing than online web **content** consisting of static images and text.

Dawn Williams (dwilliams@enforme.com) is an independent consultant specializing in e-learning strategy and instructional design for corporate and government clients. She has been designing training for the past five years with emphasis in **online learning** and performance support.

#### Preventing Sexual Harassment product rating

Holds user interest	***
Production quality	***
Ease of navigation	** 1/2
Interactivity	* 1/2
Value of <b>content</b>	**
Instructional value	* 1/2
Value for the money	**
Overall rating	**

\* Preventing Workplace Harassment, online, Brightline Compliance, LLC, \$35 per user per year.

Finally, an exciting...

...actively engaged in the process; they are frequently required to learn pieces of information and respond to questions about situations that are potentially harassing. The **course** covers not just sexual harassment but all types of unlawful harassment, consistent with recent court decisions and guidance from the EEOC.

The graphics are well chosen and are customizable. In fact, each employer can have an introductory **audio** message from a high-ranking

official welcoming employees to the **course**. The **course** can include specific instruction on the organization's harassment policies and points of contact for reporting harassment and discrimination complaints.

The program is easy to...

...a good job of covering sexual and other forms of harassment prohibited by law and company policy. Diverse employees are used in all examples.

The **course** allows learners to ask anonymous questions and get their questions answered online. Questions and answers can be posted to a whiteboard without any identifying information...

...being harassed but asks that nothing be done about it.

The post-test Quiz Show ensures that each employee comprehends the major principles of the **course** before they can complete the **course**. (They keep getting questions and feedback until they get it right.) This allows organizations to show that not only did they provide training for their...

...if someone who had failed later harassed someone.

Recommendation

Preventing Workplace Harassment is definitely not a thinly disguised paper-and-pencil program. It combines appropriate **content** with excellent instructional design. Users cannot just click their way to the end and sail through the final quiz without **learning** something. The **online** experience is backed up by outstanding customer service.

Preventing Workplace Harassment product rating

Holds user interest	****
Production quality	*** 1/2
Ease of navigation	****
Interactivity	****
Value of <b>content</b>	****
Instructional value	*** 1/2
Value for the money	****
Overall rating	*** 1/2

\* Sexual Harassment, online, MindLeaders, \$59.95 per user per year.

I want to buy a cake and light some candles. It is time to celebrate! There is a comprehensive sexual harassment program available online: the seven-**course** Sexual Harassment program from Mind Leaders.

Each **course** addresses a specific topic such as understanding sexual harassment and applicable laws, assessing and responding to problem situations, and designing policies and procedures. A **course** consists of workplace scenarios, definitions, best practices, case law, and question-and-answer sessions. All are divided into mini-units, each with a logical sequence of learning objectives, key **content**, and

multiple-choice questions.

There are additional resources available online such as links to case law and comprehensive skill assessments for each topic; however, they are not fully integrated into the program **content**.

The workplace scenarios are realistic, which improves **content** and job relevance. The paradox of this program is that its greatest asset could also be its greatest downfall. The comprehensive coverage could lead to user boredom. It is lengthy, and there is a great deal of reading with little **audio**. The scarcity of interactivity--largely limited to responding to multiple-choice questions--does not help. A willing learner could spend hours completing the **courses**, and the commitment required could test the user's ability to maintain interest.

#### Recommendation

These **courses** will help employees at all levels understand sexual harassment. To manage student interest and keep completion rates up, you should use the **content** in conjunction with instructor-led training, and an experienced subject practitioner should lead the effort.

The program may be best delivered in segments overtime, as the **content** should be absorbed in manageable pieces.

#### Sexual Harassment product rating

Holds user interest	***
Production quality	****
Ease of navigation	****
Interactivity	**
Value of <b>content</b>	****
Instructional value	***
Value for the money	****
Overall rating	***

\* Sexual Harassment: Employee Edition, online, LearningAction, \$30 per student.

The **course** from LearningAction is interactive and engaging. The miracle is that it's web based, and I'm a proponent of classroom education where learning can...

...delivered in a classroom--is whether learning really takes place. A cynical or annoyed student doesn't have to exercise much ingenuity to pass the **course** without having learned anything.

#### Recommendation

LearningAction's Sexual Harassment: Employee Edition certainly provides an excellent platform for getting the word out about sexual harassment. The **content** is divided in a simple, comprehensible way, and animation adds interest for the learner--and takes some of the burden

off poor readers. **Web-based training** puts some burden on managers because they need to provide reinforcement in the workplace.

But then isn't that what management is about? Properly used...

...a management educator for a health care system.  
Sexual Harassment product rating

Holds user interest	****
Production quality	***
Ease of navigation	****
Interactivity	*** 1/2
Value of <b>content</b>	****
Instructional value	*** 1/2
Value for the money	***
Overall rating	*** 1/2

\* Sexual Harassment: Serious Business, video, 2002, 25 mm.,  
Kantola  
Productions, \$129. Other **material**: leader guide.

The video opens with a brief overview of the costs of sexual harassment and the concepts of quid pro quo and hostile environment.

The next scene takes place in an office. An employee is talking on the telephone about her sex life. Everyone in the department is **listening** to her conversation. Several are upset. Apparently, this is recurrent behavior. This employee causes disturbances that affect workflow. Her lewd conversations prevent other telephone representatives...

...process. In addition, visually, the video seems dated.  
Sexual Harassment product rating

Holds user interest	*
Production quality	* 1/2
Ease of navigation	****
Interactivity	**
Value of <b>content</b>	*
Instructional value	*
Value for the money	*
Overall rating	*

\* Sexual Harassment Prevention **Training, Online**, 2000,  
Human Performances Technologies, \$995 per unlimited single workstation license.

This program, available via CD-ROM, Internet, or Intranet, contains all the basic ingredients of...

...control panel. I had no problem using the program and expect that the promised navigation will be delivered. The user may choose to take the **course** with or without sound. I chose to proceed with the sound version. The suggested completion time is 90 minutes.

I was never able to decide...

...a management educator for a health care system.  
Sexual Harassment Prevention Training product rating

Holds user interest	**
Production quality	***
Ease of navigation	***
Interactivity	**

Value of **content** \*\*\*  
Instructional value \*\* 1/2  
Value for the money \*\* 1/2  
Overall rating \*\* 1/2

\* Sexual Harassment? You Decide. Real Situations for Discussion, video, 2002, 22 min., VisionPoint Productions (800-300-8880, www.vppi.com), \$795. Other **material**: leader guide, participant **materials**, self-study **materials**.

This video does not get off to a good start. First, there is a rock music soundtrack, and the band isn't very good. Once...

...a basic "What is sexual harassment?" discussion. It provides a good foundation for understanding workplace harassment. But I was hoping we were not going to **listen** to the woman doing the voiceover narration in a monotone much longer.

Finally, we get to some workplace settings. The selection of topics for discussion...

...could potentially lead to harassment--if you use your imagination. None of the scenes actually shows a harassing situation.

The video offers the option of **listening** to explanations of why the scenes were not examples of workplace harassment. So the participant leaves the video with a clear understanding of what does...

...reason, I would not use the program.  
Sexual Harassment? product rating

Holds viewer interest \*\*  
Acting/Presenting \*\*  
Diversity \*\* 1/2  
Production quality \* 1/2  
Value of **content** \*  
Instructional value \*  
Value for the money \*  
Overall rating \* 1/2

\* With All Due Respect: Promoting a Respectful Workplace, video, 2000, 18 min., Edge Training Systems, Inc. (800-476-1405, www.edgetraining.com), \$595. Other **material**: leader guide, participant guide.

With All Due Respect focuses on the concept of a workplace built on equality, accepting differences, and appreciating diversity. Emphasis is...

...help you (and a training audience) stay tuned to the message. As you continue to watch, you'll appreciate a couple of things about the **content**. The program has a positive stance, not a punitive, admonitory one. It gives everyone a goal that everyone can understand and see the sense of...

...behavior. In short, this video does everything in degrees of well.

You'll also benefit from a very reasonable price."

The second reviewer found the **content** to be overly broad but did not dismiss the program's potential for live training:

"With All Due Respect provides an extremely broad overview of...

...1 Reviewer 2

Holds viewer interest	*** 1/2	**
Acting/Presenting	*** 1/2	** 1/2
Diversity	*** 1/2	*** 1/2
Production quality	****	*** 1/2
Value of <b>content</b>	****	**
Instructional value	****	*
Value for the money	****	**
Overall rating	****	**

\* You Call That Respect: Overcoming Obstacles to a Respectful Workplace, video, 2001, 16 min., Edge Training Systems, Inc. (800-476-1405, [www.edgetraining.com](http://www.edgetraining.com)), \$595. Other **material**: leader guide, participant guide.

This video provides a broad overview of concepts around workplace

harassment: what it is and how employees are expected to respond to it.

This video presents 11 workplace scenarios involving different types of harassment. The corresponding **course materials** give facilitators and participants the opportunity to discuss topics related to harassment, based on the video scenarios. This **material** prompts discussions about actions and behaviors employees should take in given situations.

The scenarios are plausible and well chosen: a manager requesting sexual favors in...

...office and manufacturing locations.

Recommendation

You Call That Respect is a discussion starter about harassment. It

has diverse characters and a high production quality. The **content** of the instruction is unexceptional, but the video is viewer friendly.

You Call That Respect product rating

Holds viewer interest	** 1/2
Acting/Presenting	** 1/2
Diversity	*** 1/2
Production quality	*** 1/2
Value of <b>content</b>	**
Instructional value	**
Value for the money	**
Overall rating	** 1/2

ABOUT THE REVIEWER: Valerie L Smith ([valsmith@optonline.net](mailto:valsmith@optonline.net)), managing partner for the Organizational Development...

...facilitated training in sexual harassment prevention and awareness, diversity-inclusion, management and leadership development, and facilitation skills.

## Recommendation

Fittingly, a video package and an online **course** stand out from the crowd: Patterns, a video-based program from Quality Media Resources, and Preventing Workplace Harassment from BrightJine Compliance.

Both combine in-depth...

...High

Leading a Respectful Workplace		production values	Price
Preventing Harassment, Promoting Respect	Video	Effective reminder	Prince
Preventing Sexual Harassment (New Media <b>Learning</b> )	Online	Unique design	Regularly updated
<b>content</b> Price			
Sexual Harassment	<b>Online</b>	Very thorough	
With All Due Respect	Video	Values approach	Good production values
			Price
In This Together	Video	Quiz format	
Sexual Harassment	<b>Online</b>		
Uncertain target audience			
Prevention <b>Training</b>		Scant feedback	
You Call That Respect	Video	Price	Good production values
Preventing Sexual Harassment, (PlayBack Media)	Online	Online video <b>course</b>	Adequate <b>content</b>
Sexual Harassment: Is It or Isn't it?	Video	Large family of products	Conventional legal
approach			

It's Not Just About Sex

Video...

...supplemented

Harassment

with live training

Sexual Harassment: Employee Edition

Limited interactivity

Matter of Respect

Older product  
Thin print support

A Policy is Not Enough: Leading a Respectful Workplace

Assumes **content** knowledge  
Limited audience

Preventing Harassment,

Not a full program

Promoting Respect	
Preventing Sexual Harassment (New Media Learning)	Very limited interactivity Text...
...Lacks some specifics on do's and don'ts	
In This Together	Thin print support Unrepresentative cast
Sexual Harassment Prevention Training	Very limited interactivity Long <b>course</b> Vignette settings limited
You Call That Respect	Lacks some specifics on do's and don'ts Unexceptional <b>content</b>
Preventing Sexual Harassment, (PlayBack Media)	Problematic delivery Should not be used as stand-alone training
Sexual Harassment: Is It or Isn't it...	Dated look
...Just About Sex	Production flaws
Anytime: Harassment and Discrimination in the Workplace	Coverage too broad Fuzzy distinctions
Recognizing and Preventing Sexual Harassment, Manager Ed. Sexual Harassment? You Decide. Real Situations for Discussion	Very limited interactivity Confusing <b>content</b>  Ambiguous vignettes Confusing commentary
Sexual Harassment Serious Business	Questionable <b>content</b> Dated look
Title	Overall Rating
Patterns	*** 1/2
Preventing Workplace Harassment	*** 1/2
Sexual Harassment: Employee Edition	*** 1/2
Matter of Respect	***
A...	

20030301

7/K/25 (Item 2 from file: 148)

DIALOG(R)File 148: Gale Group Trade & Industry DB

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...s): Alice Redmond-Neal, Access Innovations, Inc.; Jay Ven Eman,  
Access  
Innovations, Inc.

Private Equity Research

Ticketed Event #150

Price: \$225 mbr/\$275 nmbr

This **course** will review and provide guidance for researching  
venture capital and private equity from both a U.S. and a global  
perspective. It will include a...

...Librarian

Ticketed Event #110

Price: \$299 mbr/\$399 nmbr

Any information scientist responsible for providing chemistry  
reference services must understand the basics of chemistry. This  
**course** includes:.

1. An introduction to chemistry.
2. Basic concepts and research questions in organic, physical,  
inorganic, analytical, and biological chemistry.
3. An overview of how...

...Event #105

Price: \$299 mbr/\$399 nmbr

Competitive intelligence is the selection, collection,  
interpretation, and distribution of publicly-held information that has  
strategic importance. This **course** will introduce participants to  
general issues in competitive intelligence and guide them in developing  
and  
implementing a competitive intelligence service with a sci-tech  
focus...

...Visible Librarian: Marketing and Advocacy for Special Librarians

Ticketed Event #100

Price: \$299 mbr/\$399 nmbr

Libraries run by solo librarians are in jeopardy. This **course**  
will teach the solo how to present his or her value proposition to the  
larger organization and, in the process, improve the organization's  
perception of the library profession as a whole. This **course** is  
equally applicable to librarians working in larger-staffed libraries.

Presented by: Solo Librarians Division

Speaker(s): Judith Siess, Information Bridges International

9:00 AM...

...curious about eLearning because so many learning principles overlap  
with  
information management principles and practices. This workshop explains  
how

forward-thinking information professionals are developing **content** for learning programs. It reviews simple eLearning tools and focuses on how to repurpose familiar information resources in a learning environment to meet organizational goals...

...5:00 PM

Mathematics, Computer Science, and General Science Reference  
Fundamentals for Non-Scientists

Ticketed Event #170

Price: \$199 mbr/\$299 nmb

This half-day **course** will enhance the skills of students and librarians new to science reference, especially mathematics and computer science. It will review important print and electronic resources...

...Professional Partner

Sponsor(s): Dialog, The Information Professional Partner  
Criminal and Investigative Research: Satisfying Due Diligence  
Ticketed Event #180

Price: \$199 mbr/\$299 nmb

This **course** will review criminal and other public records sources (online and offline) and strategies for conducting background checks. Discover what is public record and what is...

...Center

Speaker(s): Rita Vine, Workingfaster.com

Competitive and Strategic Intelligence toward Professional and Organizational Success

Ticketed Event #185

Price: \$199 mbr/\$299 nmb

This **course** examines the intelligence process, techniques, and tools; explains the intelligence profession; and reveals how to apply intelligence toward organizational and professional success. Participants will learn...

...Development Center

Speaker(s): Cynthia Cheng Correia, Fuld & Company, Inc.

Basic Immunology for Biological Information Professionals

Ticketed Event #175

Price: \$199 mbr/\$299 nmb

This **course** covers basic concepts in immunology and relates them to the types of questions clinicians, researchers, and students may ask of biological information professionals. Participants will...

...one of the key areas of business information. Much of this information is in the public domain, but sourcing it demands a systematic approach. The

**course** teaches the successful research strategy that can be used in information projects to provide excellent company reports.

Presented by: Business & Finance Division

Speaker(s): Sylvia...

...Resources Online

Ticketed Event #275

Price: \$199 mbr/\$299 nmbr

Information professionals working in the health sector must understand government regulations and their implications. This **course** focuses on types of regulatory data most likely to be requested - and why. Attendees will master basic terminology, increase confidence and competence in requisite data...

...Engineering; Lorri Zipperer, Zipperer Project Management

8:00 AM-12:00 PM

Deadline Due Diligence

Ticketed Event #281

Price: \$199 mbr/\$299 nmbr

This CE **course** is designed to bring together in one **course** the very best techniques used by news librarians, and business researchers to locate information about people and research companies and organizations. News librarians are routinely...

...provide detailed background on persons both well-known and unknown who have become newsworthy as well as in-depth information about companies and organizations. This **course**, originally designed by news researchers to be taught to journalists, collects and refines research techniques that rely on readily available, no low cost sources. The third component of this **course** is maximizing the power of the Google search engine for fast, in-depth research by customizing the Google interface.

Presented by: News Division

Speaker(s...

...Toby Lyles, Ralieggh News and Observer; Marion Paynter, Charlotte Observer

Planning and Conducting an Information Audit

Ticketed Event #255

Price: \$199 mbr/\$299 nmbr

This **course** introduces the information audit concept and, using a seven-stage model, practical examples, and case studies, shows participants how to apply the process to their...

...Ralph Godau; Sue Henczel

Making It Count: Measuring the Value of Special Libraries and Information Centers

Ticketed Event #245

Price: \$199 mbr/\$299 nmbr

This **course** focuses on a new approach for identifying and measuring the value of library and information services. Participants will identify several critical success factors, measures for...

...s): Frank Cervone, University Librarian for Information Technology, Northwestern; Darlene Fitcher, University of Saskatchewan, Northern Lights

Internet Solutions, Ltd.

Helping Engineers and Other Scientists Select **Materials**

Ticketed Event #210  
Price: \$199 mbr/\$299 nmbr

Time spent in the library can save time in the laboratory.

Today,  
with electronic archives and property...

...research projects can be streamlined using resources that once sat  
on  
the shelf. This workshop explores resources that help focus research in  
the  
areas of **materials** selection.

Presented by: **Materials** Research & Manufacturing Division  
Speaker(s): Patricia Kirkwood, Pacific Lutheran University  
8:00 AM-5:00 PM  
Business Intelligence Toolkit 202: From Research to Intelligence  
Ticketed...

...Daulong, Dell Computers  
How to Teach Search Skills to Know-It-All Searchers  
Ticketed Event #225  
Price: \$299 mbr/\$399 nmbr

This full-day, active **course** covers the essentials of  
planning **content** for a session, timing issues, and tips and tricks  
that experienced trainers use to make learning stick after a class.  
Participants will learn the basics of presentation skills, plus tips  
for  
simplifying **content** and energizing presentations.

Presented by: SLA Professional Development Center  
Speaker(s): Rita Vine, Workingfaster.com  
Effective Presentations and Effective Communications: 101  
Ticketed Event #290  
Price: \$199 mbr/\$299 nmbr

#### CE **Course**

Presented by: Leadership and Management Division  
**Content** Management Strategies and Tools  
Ticketed Event #215  
Price: \$299 mbr/\$399 nmbr

This workshop is intended to assist attendees who architect and  
implement world-class intranets. The intermediate- to advanced-level  
**courseware** is designed for **content** managers, information  
architects, Web developers, and publishing personnel interested in  
deploying current generation database and related tools and Web-  
enabling  
strategies. Howard McQueen will discuss his Seven Layer model for  
**content** management, analyzing where **content** and technology  
intersect with people and business processes.

Presented by: SLA Professional Development Center  
Speaker(s): Jean DeMatteo; Howard McQueen, McQueen Consulting  
Competitive Intelligence: Building...

...Speaker(s): Denise Dodd, Independence Blue Cross  
Back to Basics Business Research: Strategies, Tactics, and  
Sources

Ticketed Event #220  
Price: \$299 mbr/\$399 nmbr

This **course** is designed to help special librarians find,

evaluate, and structure the business information that is needed in their work. In addition to discussing the basic...and Information Studies at Queens College, City University of New York

GIS for the Special Librarian

Ticketed Event #230

Price: \$299 mbr/\$399 nmbr

This **course** provides a hands-on orientation to the capabilities of Geographic Information Systems (GIS) in library settings.

Participants will learn the basics of ArcGIS software and the components of geospatial data. This **course** covers fundamental GIS concepts blended with actual map making and geospatial data query using ArcView's map making and analysis tools.

Presented by: Geography & Map...

...mbr/\$299 nmbr

Explore the new world of text analysis software and techniques.

Text

analytics is the hot new area where analysis of full-text **content** can help you anticipate potentially damaging news about your organization, anticipate trends, and track competitor actions. Sophisticated text analysis software from IBM and others will...

...features to look for in a blogging toolkit, the do's and don'ts of blog

publishing, how blogs can make publishing and managing Web **content** easier, and how to establish a blog "brand."

Presented by: SLA Professional Development Center

Speaker(s): Frank Cervone, University Librarian for Information Technology, Northwestern; Darlene Fitcher, University of Saskatchewan and

president, Northern Lights Internet Solutions, Ltd.

Communication Patterns of Engineers

Ticketed Event #305

Price: \$199 mbr/\$299 nmbr

This **course** will identify how engineers communicate, explain differences in communication among engineering specialties, discuss how their information use affects their work, and reveal how the best...

...Trends spanning the past 25 years in engineering-oriented authorship, information seeking, and reading patterns also will be discussed, along with electronic journals.

Presented by: **Materials** Research & Manufacturing Division

Speaker(s): Donald King, University of Pittsburgh School of Information Sciences; Carol Tenopir, University of Tennessee, School of Information Sciences

1:00...

...Anthony Trippe, Chemical Abstracts Service

Sponsor(s): American Chemical Society

Chemical Information Sources, Requests, and References

Ticketed Even #315

Price: \$199 mbr/\$299 nmbr

This **course** teaches the types of questions that chemical researchers present to an information specialist and reference sources that

can be used to answer them. Among other things, the **course** will cover the types of reference sources in the chemical sciences, their access

points, and the questions they are best equipped to handle.

Presented by: Chemistry Division

Speaker(s): Bartow Culp; Judith Currano; Dana Roth

The Accidental Archivist

Ticketed Event #331

Price: \$199 mbr/\$299 nmbr

This **course** is designed as a starting point for those corporate librarians (with a demonstration case from a newspaper), who are

tasked with creating, managing or providing oversight for corporate archives or unorganized collections archival **materials** of special commercial or historical interest to the parent organization. The **course** is designed to train special librarians to establish and manage corporate archives effectively and efficiently as a minor but important addition to their libraries and information centers, and to create opportunities to easily collect **materials** which will become valuable to the organization at a later date. The **course** will also examine archival issues related to archiving news products such as bound

volumes, microfilm and PDFs.

Presented by: News Division

Speaker(s): Vincent Golden...

...PM

Publisher/Librarian Archiving Initiatives

Come hear how librarians and publishers, working together, can help

solve the sticky issues of long-term access to electronic **materials**.

Vicky Reich, director of LOCKSS (Lots of Copies Keeps Stuff Safe) will talk

about the status of the project, and a publisher and a library...

...energizing breakfast, and a lively discussion on cutting-edge emerging

technology and its impact on you, your job, your library, and the information profession. Come, **listen**, and contribute your thoughts about the impact of emerging technology on you.

Presented by: Legal Division

Moderator(s): Nathan Rosen, Credit Suisse First Boston LLC

Speaker(s): Thomas Fleming, Jeffer, Mangels, Butler & Marmaro LLP; Nathan Rosen, Credit Suisse First Boston LLC

Sponsor(s): Thomson West

News Research without Borders

Come **listen** to an international panel, discuss all kinds of issues relating to international news research: sources, cases, problems, solutions, new tools, international cooperation and networking, presentations...

...information located on the invisible Web, including specialized search engines, methods for finding specialized data, and resources for images, streaming media, and other non-HTML **content**.

Presented by: Information Technology Division

Moderator(s): Ty Webb, Information Technology Division

Speaker(s): Mary Ellen Bates, Bates Information Services

Nanotechnology: What Is It and...

...Moderator(s): Cynthia Lesky, Threshold Information, Inc.

Speaker(s): Tom Fearon, Lehman Brothers; Jillian Hamer, Boston Consulting Group; Duncan McKenney, Quaker Oats

Recruiters Roundtable

Come **listen** as leading recruiters in the library industry share secrets of how to get and keep a job in this economy.

Presented by: Solo Librarians Division...

...Matters

As more and more publications are being digitized or simply "born digital," many wonder how to ensure long-term access to these non-print **materials**. Can models for archiving be developed that balance the rights of publishers, the responsibilities of librarians, and the needs of

users? This session looks at...three hundred distinct areas and contains

over one million HTML and PDF files. EPA has recently undertaken initiatives to familiarize stakeholders with the structure and **content** of EPA's Web domain. Librarians, as information intermediaries, are the first Web Ambassadors to receive the EPA toolkit.

Presented by: Environment & Resource Management Division...

...ten skills every employer needs.

Presented by: Military Librarians Division

Speaker(s): Pat Wagner, Pattern Research

Corporate Virtual Reference Service

As the delivery of electronic **content** and services continue to grow, some libraries are moving to the reality of a completely virtual

library. Panelists share experiences.

Presented by: Business and Finance Division

Moderator(s): Sylvia James, Sylvia James Consultancy

Speaker(s): Stephen Marvin, West Chester University; Arlene Smith, GlaxoSmithKline Pharmaceuticals

**Materials** Session

Please see <http://www.sla.org/nashville2004> for more information.

Best of the Web for the Advertising Industry

Overwhelmed by the time-consuming prospect...

...information professionals?

Presented by: Education Division

The Semantic Web: Modeling the New Web with Librarian Input

The Semantic Web will bring structure to the meaningful

**content** of Web pages. The father of the Web, Tim Berners-Lee, is leading an effort to redefine the Web and is holding a spot for...

...best resources for fielding media information requests.

Presented by: Advertising & Marketing Division

Speaker(s): Deb Link Svayer, Carmichael Lynch; John Rash, Campell Mithun

Intranets: Cool **Content** and Tools and Getting the Work Done

Come hear about newsroom intranets and different ways they are used in newsrooms. While newsroom intranets are traditionally...

...with an MLS degree while you enjoy a boxed lunch. This session is geared to students and new graduates.

Presented by: Leadership and Management Division

**Content** Management Standards--Technical Standards

#### Update

In a networked environment, knowledge organization structures such as taxonomies, thesauri, and other semantic tools make the data, information, and knowledge come alive. This popular...

...Division, Technical Standards Committee

Moderator(s): Marcia Lei Zeng, Kent State University

Speaker(s): Marjorie Hlava, Access Innovations, Inc.; Amy Warner, Lexonomy, Inc.

Meeting Information **Content** Needs in the Insurance Industry

Research with information **content** users in the insurance industry shows that there are unmet needs for competitor intelligence, knowledge management, and tighter control over **content** spending. Panelists will discuss this research and will share how they are meeting these needs in their organizations.

Presented by: Insurance & Employee Benefits Division

Speaker...

...Moderator(s): Georgia Higley, Library of Congress

Speaker(s): Diane Kresh, Library of Congress; Susan McGlamery, 24/7

#### Reference

Adding Value and Making a Difference

**Content** may be king, but adding value to the **content** we provide is what ensures that our clients understand the vital role of information professionals within an organization. Two long-time information professionals will discuss...

...A public relations expert will reveal common pitfalls and subtle techniques for building credibility.

Presented by: SLA Public Relations Committee

Moderator(s): Cindy Romaine, Nike

**Materials** Science and Engineering: Past, Present, and Future

This session provides an overview of the development of

**materials** science and engineering; the contributions of chemistry, physics, and other fields of engineering; and factors influencing its growth. The future of **materials** science and its impact on education, industry, and society will be discussed.

Presented by: Chemistry Division, **Materials** Research & Manufacturing Division

Speaker(s): J. Mackenzie, University of California, Los Angeles  
KAIS Roundtable

Roundtable discussions are an excellent opportunity to learn and network. Join...

...Moderator(s): Denise Jones, News & Observer

Speaker(s): Libby Wallace, Post and Courier; Derek Willis,  
Center  
for Public Integrity

Sponsor(s): Factiva

MERLOT (The Multimedia **Education** Resource for **Learning**  
and **Online** Teaching)

MERLOT ([www.merlot.org](http://www.merlot.org)) is a free and open resource designed primarily for those involved in higher education. Members, such as faculty, students, and librarians, contribute resources and assignments through a peer-reviewed process. Learn about this resource, its business education-related **content**, how it was created and continues to grow, how it is used to develop business information literacy skills, and how you can get involved.

Presented...

...DERM members for an informal forestry Section Roundtable.

Presented by: Environment & Resource Management Division

Moderator(s): Carla Heister, Yale University

Negotiating with Vendors

Hear from **two** managers of external **content** based in large pharmaceutical companies who negotiate **access** to external **content** across sites, across continents, and across cultures. Pick up tips on maximizing your budget, on getting the most from your vendors, and on creative ways...

...Roundtable

Presented by: Business & Finance Division

Public and Government Libraries Roundtable

Presented by: Business & Finance Division

Real Estate Libraries Roundtable

Presented by: Business & Finance Division

**Materials** Information

Roundtable discussion involving representatives of several **materials** research associations.

Presented by: **Materials** Research & Manufacturing  
Division, Chemistry Division

Success Stories for Solos

Come share ideas and hear case stories from fellow solos on what works and what doesn't...

...Technology Division

3:45 PM-5:00 PM

SLA Tech Zone: Multimedia the Easy Way

Ticketed Event #581

Price: \$35.00

Create high-quality multimedia **content** easily without any programming knowledge. Learn how to capture **tutorials** and demonstrations in Windows Media File and Flash formats using Camtasia Studio, a suite of software tools that enables you to record, edit and publish...

...Meeting/Reception index for more information on the many business sessions hosted by our SLA Units.

Manufacturing Session

Details will be finalized shortly.

Presented by: **Materials** Research & Manufacturing Division

Cultivating Your Marketplace

Follow Chris Olson as she uses a hypothetical ad agency setting to go through the process of identifying and...after, and how and where to find them! This is a fascinating topic to all of us who have spent hours tracking down these standards. **Listen** to practitioners and vendors as they assist us with this challenging task!

Presented by: Engineering Division, Petroleum & Energy Resources Division, Science-Technology Division

Moderator(s...

...Piety, Cleveland Public Library

Gray/Grey Literature

According to the U.S. Interagency Gray Literature Working Group, gray literature is "foreign or domestic open source **material** that usually is available through specialized channels and may not enter normal channels or systems of publication, distribution, bibliographic control, or acquisition by booksellers or...

...State University; Dominic Farace, Grey Literature Network Service

SLA Tech Zone: Multimedia the Easy Way

Ticketed Event #625

Price: \$35.00

Create high-quality multimedia **content** easily without any programming knowledge. Learn how to capture **tutorials** and demonstrations in Windows Media File and Flash formats using Camtasia Studio, a suite of software tools that enables you to record, edit and publish...

...the Internet

Sharon Smith and Rachel Kolsky from AIG discuss how they harness free and fee-based resources, incorporating them into their internal R & D **content** management and delivery solutions. Yan Hong, reference librarian at the University of Connecticut Law School, shares her knowledge of Web research sources on insurance law...

...resources across a global agency network is a complicated endeavor.

A

panel presentation and moderator-led Q & A will address information

technology, copyright, contractual restrictions, **content** integration, culture, and other issues as they relate to information sharing via a library portal.

Presented by: Advertising & Marketing Division

Moderator(s): Robin Feuerstein, The...

...shared online, using OCLC's CONTENTdm Digital Collection Management Software. Dianne Schaefer, project manager for the Appalachian College Association, will review selection and management of **materials**, metadata description, and use of the collections.

Presented by: Museums, Arts & Humanities Division

Moderator(s): Martha McPhail, San Diego State University

Speaker(s): Dianne Schaefer...

**20040201**

7/K/26 (Item 3 from file: 148)

DIALOG(R)File 148: Gale Group Trade & Industry DB

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### **Vitalect Announces Significantly Enhanced Performance and Functionality in its New Techniq Learning Content Management System 3.0.**

MOUNTAIN VIEW, Calif.--(BUSINESS WIRE)--May 20, 2002

Cadence Design Systems Speeds **Content** Creation and Deployment with Vitalect Solution

Vitalect, a premier provider of learning **content** management solutions, today announced significant performance enhancements to its new

Techniq(SM) Learning **Content** Management System (LCMS) 3.0. This newest release of its Techniq authoring and delivery system speeds and simplifies the conversion and delivery of custom **content** for **online training** and customer support.

"Cadence Design Systems has been a longtime user of Vitalect to develop the **Internet Learning Series (iLS) courses**. With this new release of the Techniq Author 3.0, Cadence( R) curriculum developers can more rapidly develop, deploy and maintain engaging **content** for the **Internet Learning Series**," said Bonnie Willoughby, Senior Marketing Director of Customer Education at Cadence Design Systems. "Vitalect's newest Techniq LCMS 3.0 release is a robust, scalable platform for creating, assembling, storing, managing and delivering eLearning **content** for Cadence **Internet Learning Series** customers. The feedback from our customers consistently indicates that they like the fact that **content** can be easily customized and readily available."

Key features of the new Vitalect's new JAVA-based Techniq LCMS 3.0

solution include the capacity to:

-- Allow authors

to more easily create, assemble and share meta-tagged learning objects

-- Enable authors to easily upload and download **content** using their favorite authoring tools

-- Support a single user interface for authors, instructors, learners and administrators that simplifies **course** creation and ongoing **course updates**

-- Simplify version control and workflow management with a graphically based change tracking mechanism

-- Support an expanded learner collaboration model with build-in live connections between students, instructors and subject matter experts. "Vitalect's entire focus is on solving customer problems in their learning programs with simplicity in **content** development, creation, reuse and accessibility for just-in-time ...observed Pran Kurup, chief executive officer and president of Vitalect. "That's why we've developed a solution with fine learning object granularity that permits **content** to be easily authored, metatagged, stored, searched and retrieved by users. Our unique single log-on capability further simplifies access, enabling all who access our...

...and administrators -- to change roles through one simple interface." Cushing Anderson, program manager for IDC's Learning Research Group, observed, "Companies who produce lots of **content** must simplify learning **content** management for themselves and make distribution of **content** convenient to the various learner communities. Vitalect provides a solution that leverages **content** developer's time by keeping the focus on 'what's new.' At the same time, the solution helps ensure that only meaningful, relevant **content** is presented to the learner by focusing on what the learner needs to know. That is a powerful combination."

Vitalect's new Techniq 3.0 Learning **Content** Management System includes both an authoring and a delivery capability. Techniq Author 3.0 is a **content** authoring system that enables domain experts and instructional designers (**course** authors) to create compelling, personalized **learning** experiences for **web-based** delivery to their learners. Techniq Author provides an easy-to-use interface where authors or instructors can design, create, assemble and import **content** directly into the **course** structure with a few simple mouse clicks. Developers can compare changes with previous versions and can easily see and share information regarding **course** modifications through an elegant summary of **course** edits. **Course** developers can simply preview **content prior** to publishing, and results are **viewed** and verified quickly, ensuring accuracy and speed in **course** authoring. Using Techniq Author,

authors can easily create, deliver and track online exams using a variety of question and answer formats.

Techniq Tutor 3.0, Vitalelect's **content** delivery system, is a distinct yet integrated component of the LCMS for the delivery of self-paced learning and tracking of associated learner data. Learners are engaged with custom **course content** delivered via the most effective utilization of the web's most compelling media, including streaming **audio** and video, animations and simulations. Real-time, instructor-led communication via WebEx (Nasdaq:WEBX), self-paced learning curricula, and additional interactive learning experiences using chat with peers; instructors are able to enhance **content** by adding supplemental notes for **courses** tailored to the skill sets of different learning audiences. Detailed progress tracking gives learners and instructors alike detailed information about student progress and **content** usage.

Vitalelect's Techniq LCMS 3.0 is based on the learning object model of the IEEE LTSC and the IMS metadata specification. It was developed using a J2EE compliant application, JAVA technology, and JDBC for database agnostic connectivity.

About Vitalelect

Vitalelect, Inc. is a leading provider of custom eLearning **content** solutions designed to accelerate the rate of knowledge transfer across ...solution delivers the technology infrastructure and instructional design services that help companies train their customers, employees, sales channels and business partners. Vitalelect's Techniq Learning **Content** Management System technologies encompass **content** development, authoring, management and certification tools in a web-based system with worldwide hosting, support and 24x7 maintenance services. Founded in 1997, Mountain View, Calif...

**20020520**

7/K/27 (Item 4 from file: 148)

DIALOG(R)File 148: Gale Group Trade & Industry DB

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**DISTANCE LEARNING PLANNING, PREPARATION, AND PRESENTATION:  
INSTRUCTORS' PERSPECTIVES.(Instructional Television Fixed Signal program,  
University of South Florida)**

...are simultaneously broadcast live to various ITFS sites within central

Florida using microwave frequencies. Existing research linked to practical guidance for instructors interested in teaching **courses** via **distance learning** is provided in the areas of planning, preparation, and presentation of a **course**.

More and more educational institutions are asking their faculty to teach **distance education courses** where some of the students are located at off-campus or distance sites which are often closer to their place of work or home. To...

...to interact with the site students via a live phone connection at all times.

#### PLANNING

Experts indicate that preparation of faculty members to teach a **distance learning course** is necessary and multi-faceted (Tiene, 1997; Toby Irvine Communications, 1992). Faculty should plan to attend **training** sessions in optimal **distance education course** design and preparation of **materials** with respect to appropriate size and color, copyright laws, and student interaction. Faculty may wish to practice on the actual systems they will

be using and they may wish to have knowledge of and input into campus policies regarding storage and viewing of **course** videotapes. Other valuable information for planning purposes relates to communication with the camera crew, physical appearance, and selection of clothes.

#### Course Selection

Faculty are consulted each semester for appropriate **courses** for delivery at distance sites. Faculty may be asked to teach a **course** which will be recorded for later broadcast. Instructors need to be aware that delayed broadcast may be problematic due to the lack of interactivity between...

...had no way of making sure delayed broadcast students were participating in the learning activities in which the broadcast students were involved.

In one such **course**, the site facilitator informed the instructor that students were not engaging in class activities, so the instructor specifically added a request urging the delayed broadcast...

...students viewed the tape in which the instructor discussed what they had done and realized that their efforts were an important contribution to the overall **course**.

Lastly, instructors may be asked to broadcast a **course** even though there won't be a studio audience. We have described the difficulties associated with attempting to teach a **course** in this matter in a companion article (Loeding et al.). It is our experience that this does not represent best teaching practice and instructors should **view** this as

a "practice of last resort".

#### **Course Design and Materials**

After appropriate **courses** have been selected for **distance education** and faculty members have been assigned, instructors need to carefully consider the amount of **content** they can effectively deliver in a **course** involving distance sites. Our experience and that of others (Gottschalk, 1996) has shown that presenting **content** at a distance is usually more time consuming than presenting the same **content** in a traditional classroom because of the logistics involved. For further information, see the section on logistical problems.

Instructors may also have to rethink how they intend to deliver the **course** and incorporate a wider variety of instructional techniques into the **course** design. Participants in a qualitative research study on effective televised instruction viewed instructors who varied their presentations with videotapes, demonstrations, guest presenters, class discussions, slides...

...instructors who relied solely on the lecture method (Sebastian, Egan, Welch & Page, 1996). Previous research indicates that students appreciate seeing short video clips during televised **courses** (Janda, 1989; Sebastian et al., 1996). However, our instructors learned that it is necessary to obtain copyright permission for films they wish to show unless or demonstrations.

In designing a **distance education course**, an instructor may assume that the learners will take some active responsibility for accomplishing the goals of the learning activity (Charlton, 1995). A study conducted by Sebastian et al. (1996) indicated it is the instructor's responsibility to make certain that all students receive the appropriate **materials** each week. Instructors on our campus are asked to prepare a handout packet for each site one week in advance. This advance time allows our staff to make necessary copies, insert the **materials** into properly marked packets and deliver the packets to each site prior to the broadcast. This packet could include handouts the instructor intends to distribute in class, copies of **materials** needed to participate in class activities, and **materials** the instructor will have students examine in class. Agendas may be included which provide detailed, sequential information for the class as well as a listing...

...electronic library reserve services are now available at our university so that site students do not have to travel to the library to read the **materials** their instructor has placed on reserve. Instructors who wish to place **materials** "on electronic reserve" for students to access from their home computers deliver the **materials** to our reference librarian at the beginning of the semester.

Instructors are encouraged to use enlarged fonts (at least 20 point) and colored backgrounds for **materials** they intend to display on the

television monitors. Our main campus has a faculty computer lab where faculty may use color printers, scanners, and CD writers to prepare **courseware**. Even though this involves additional preparation time, it is not necessary for instructors to make transparencies because the original hard copy can be displayed on...

...camera positioned by the studio crew. This camera allows instructors to display visuals for students (on both studio and site monitors) to view more closely **materials** that ordinarily would be difficult to see clearly when displayed in front of a traditional classroom. For example, instructors often wish to display three dimensional projects created by former students, three dimensional models, and assistive devices such as hearing aids and communication aids.

#### Policies Related to **Course** Videotapes

Instructors should establish a clear policy about what happens to the videotapes during and at the end of the **course**. The issue of intellectual property is applicable to this subject. In our experience, most instructors do not approve of the tapes being re-broadcast because they feel it is critical to **update** the **course** each time they teach it to maintain academic integrity and excellence. Knowledge is not

static. Questions needing policy decisions include:

1. Should tapes for each...

...USF has handled some of these questions with a campus-wide policy while leaving others to the discretion of individual instructors. Generally, tapes for each **course** are kept for the duration of the semester because it is our experience that there are enough emergencies necessitating absences in the lives of our students to warrant this policy.

These **course** tapes are stored in the studio area and monitored by the studio production crew. Some instructors do not mind allowing students to check out tapes, while others have decided it is more appropriate to have the tapes viewed on campus in the video lab. At the end of the **courses**, the instructors are contacted to see if they want any or all of the original tapes. Unclaimed tapes are then recycled to record the next semester's **courses**.

#### Communication with Studio Crew

Prior to the **course**, instructors should plan to familiarize themselves with the features of the studio and the cameras by scheduling a time to talk with the crew and...

...interesting feature involves the ability to display class members while simultaneously displaying the instructor in a small circle in the corner of the screen. Similarly, **material** the instructor has placed under the overhead camera may be displayed while the small circle shows; the instructor discussing it. This simultaneous display enables students to

take notes from the **material** on the screen while maintaining visual contact with the instructor. This technique also introduces a variety of visual images for students to look at and...

...looking straight at the camera and talking to them the entire time.

It is also helpful for the instructor to apprise the crew of all **materials** and activities that will be used during each class so that camera angles may be planned. For example, crew members may be interested

in knowing whether the instructor will be using the whiteboard or overhead

camera frequently because they can make the **course** delivery flow more seamlessly when the instructor gives advance notice that he/she will

be displaying something under the overhead camera. Prior to class, the...

show the videos. It is important for the instructor and students to refrain

from speaking during the showing of the videotape because sites receive the

**audio** from the videotape and will miss any comments made by the instructor.

Clothes and Physical Appearance

Our instructors have learned that it is important to...

...front of the studio; otherwise, shadows may affect the site students'

ability to fully view the instructor.

#### PREPARATION

As instructors begin to prepare for successful **distance learning**, they must be aware of the additional time requirements and prepare for interactive instruction to optimize the learning for all students. Instructors at our campus...

...delivery and set-up of equipment and arrive in sufficient time to load

their software. Other instructors also need to arrive early to organize their **materials** and meet with the crew prior to the beginning of the broadcast.

#### Interactive Instruction

Bauer and Rezabek (1992) compared verbal interactions in three types

of classrooms: traditional classrooms, teleconferenced instruction in which

students only had two-way **audio** contact with the instructor and teleconferenced instruction in which students had two-way **audio** and

video contact. They concluded that students in traditional classes interacted significantly more than either of the teleconferenced types of

classes. In addition, Tiene (1997) surveyed distance students taking five

high school advanced placement **courses** and learned that those students reported that they found it harder to pay attention and get help

from the teacher significantly more often than students...

...When using two-way video transmission, name cards may also be prepared for the site students' use. When using one-way video and two-way **audio** transmission, the instructor can request that students send in photographs of themselves or arrange for photos to be taken of each student. As a student...  
...could she have forgotten one of her students? The mystery was solved when the instructor learned that this was one of her students from a **distance learning** site whom she had never seen who happened to be on the main campus.

Instructors must display immediacy behaviors or those communication behaviors that convey...

...Murphy & Fart, 1993). For example, the instructor may review certain points when he/she detects confusion on the part of the site students through their **audio** comments or questions. Our instructors make it a point to greet each of the sites and call on sites to respond throughout each class. Faculty...

...faculty members must be encouraged to take an active role in communicating with the distance learner (Dillon, Gunawardena & Parker, 1992).

#### Communication

Faculty members involved with **distance learning** have increased responsibility for maintaining communication with students at distance sites during instruction, as well as intensive preparation and planning requirements prior to instruction. These increased responsibilities, described below, suggest that traditional **course** designs, as well as institutional remuneration and/or teaching load may need to be adjusted accordingly.

The instructor needs to communicate with each site facilitator so that the facilitator knows whether the instructor wants all the **materials** in the site packet distributed at the beginning of the class or only upon direction from the instructor. Facilitators may need guidance as to how...students to communicate through the use of telephone calls, email, faxes? and letters. Instructors can include this encouragement in both their syllabus and in their **course** presentations. In a study examining these four techniques, Janda (1989) reported that students viewed electronic communication with their instructors quite positively. In addition, to promote...

...to answer student questions in a timely fashion regarding upcoming tests. Our students also use email to clarify statements made in a lecture or clarify **course** assignments after they have begun working on them. Email is an excellent way to discuss concerns that either a student or a professor has in...

...because it gave her an opportunity to think about the concern objectively rather than respond immediately in a defensive manner.

#### PRESENTATION ISSUES

Instructors teaching via **distance education** face

additional issues not faced by other faculty, such as: how to handle logistical and/or technical problems related to **distance education**; how to integrate guest speakers and student presentations; how to increase interactivity from a distance; and how to ensure that one phone is being shared among all students at a site. Recommendations for instructors in this section include issues related to **course** presentations, site participation, and the value of viewing videotapes of their classes to evaluate their own teaching performance.

#### Logistical Issues

When determining the number of sites to use for each **course**, instructors have found it difficult to keep track of more than three sites in addition to the studio. Logistical problems increase with each additional site...

...a minimum time delay of three weeks before assignments can be returned.

This time delay should be explained to students at the beginning of the **course**. Then, if the instructor is able to grade assignments more quickly, the students will be pleasantly surprised. In addition, when assignments are not received on...

...it is possible for the instructor to delegate some of these responsibilities to others, it has been our experience that it is the instructor's **course** evaluations which suffer if the students encounter logistical problems.

#### Technical Issues

Thunderstorms and power outages can adversely affect transmission of the **course**. When transmission is interrupted, the studio crew generally asks the instructor to stop teaching as efforts are made to reconnect with sites. Usually the instructor...

...will automatically be cut off regardless of whether or not the instructor is finished.

Technical problems can make it impossible to cover the amount of **material** the instructor planned. Yet, it would be unfair to let technical problems penalize the students. In cases where technical problems affect a significant portion of the **course**, an additional class session may be necessary to meet the requirements.

Anecdotally, technical problems have negatively affected **course** evaluations conducted at the end of the semester. In a survey by Tiene (1997), 61% of the distance students agreed with the statement "technical difficulties with the transmission sometimes interfered with the **course**" (p.43). In an attempt to minimize this effect and to assist students in separating the instructor's performance from the ITFS system's performance, instructors often give the students a separate evaluation form for evaluating the technical delivery of the **course**. Our university has recently instituted a policy which takes **distance learning** assignments into consideration when an instructor's teaching performance is being evaluated.

### Issues Related to Speaker **Materials**

Often guest speakers or student presenters bring handouts to accompany their presentations. Unless the instructor has made arrangements to obtain these handouts the week before...

...Tiene (1997) reported that 77% of the students agreed with the statement "the fax machine was used a great deal to speed up exchange of **materials**". As a last resort, the handout can be mailed to site-students. The instructor should also check with guest speakers to see if they plan...

...of self-evaluation and/or may have peers evaluate their teaching techniques by visiting the class or viewing videotapes.

### SUMMARY

Based on our experiences, faculty **training** for teaching **distance education courses** is essential. **Training** should include strategies for involving site-students, facilitating communication with the camera crew, responding to student questions before answering them, and reflecting on how to...

...of logistical and technical problems should be addressed.

One of the most important factors for instructors to focus on is how

to enhance interactivity in **distance education courses**

. Interactivity is important if instructors want students to ask questions, make comments, participate in class activities, and feel connected to the class. A studio audience is needed for instructors to establish natural patterns of instruction. Two-way **audio** and two-way video yield the potential for the greatest amount of interaction between all students and the instructor. To achieve optimal student participation, it is critical to provide in-service training for instructors with no prior experience in the delivery of **distance education**. Our experience indicates that this refining should focus on techniques for planning instruction, preparing **course materials** and presenting instruction which capitalize on the use of the technology available in the studio.

Future research will include surveying site students to determine the frequency with which and method by which they contact their instructor as well as reasons for non-contact. Factors related to satisfaction of **distance education** students, such as the extent to which successful site students are highly motivated and independent learners, need further investigation. Our experiences indicate that to increase the **educational** benefits from the use of **distance learning** technology, instructors must work to understand the special needs of site students and meet the challenges this technology or use of this technology

presents.

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**Descriptors: ...Distance education--  
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**Debunking the distance-learning myth: we've overcome the challenges of electronic distribution, and no technical barriers remain to prevent distance learning from becoming an overnight reality. So, why aren't more companies taking advantage of it? (tech trends).**

For decades, distance learning has been put forth as a low-cost panacea for the inherent difficulties in transferring information among people, whether in an academic or a corporate...

...or policy. Such learning can reduce or eliminate travel costs and free individuals to study at their own convenience and pace. One classic application of distance learning is to provide a means for disseminating "tribal knowledge" within a company. Another is to allow people to download evaluation tools and tutorials from the Web at low or no cost, an especially appealing proposition to out-of-...likely to recommend its purchase when such a tool is required. Additionally, properly trained users are expected to place a lighter load on support channels.

Distance learning has met the first major hurdle--distribution--and connection bandwidth provides acceptable presentation, even of audio and limited video, in a practical, pervasive, and cost-effective manner. So, why aren't more companies taking advantage of distance learning as an educational or marketing tool? As appealing as the possibilities are, significantly large hurdles still exist for distance-learning technology to overcome.

#### CONTENT IS KING

Several considerations of distance learning arise beyond distribution. These considerations include content, interactivity, automation of processes, personal touch, and cost. Quality

of content is the most critical of these factors. A variety of methods and corresponding tools exists for capturing content, but good tools don't guarantee quality presentations. Distance learning requires more preparation than simply putting a training manual online. In many cases, the quality of printed material decreases when you post it online because it becomes more difficult to use efficiently; compare adding bookmarks and notes to a printed catalog with locating and downloading the same material each time you need to access it.

Distance learning has two major forms: asynchronous, meaning that you can access it at any time and in any place, and synchronous, meaning that you can access it in real time. Synchronous teaching is similar to in-person teaching in that a real person uses support materials to give a presentation, can dynamically alter the material to meet student needs, and may be able to immediately answer questions. The mistake that users make with asynchronous teaching is

thinking that ...differs little from synchronous teaching: There is no live person giving the presentation (it could be prerecorded) or available to answer questions, so the support materials must stand on their own. Designers of self-paced materials must keep self-pacing in mind when developing them.

A major vendor investing in distance learning gives the following estimates in distance learning: It takes 25 to 35 hours to prepare one hour of material for a live presentation and 150 to 200 hours for one hour of an asynchronous presentation. This scenario presents a five- to 10-times increase in the time- to-cost ratio.

In other words, to break even on time alone, you need to be able to use the exact same materials for five to 10 sessions. The time-to-cost ratio increases as you add multimedia elements or video.

It is rare to get material down perfectly the first time. The live lecturer can incorporate feedback from students by changing the presentation the next time that he or she gives it. Simple changes are relatively easy with a live presentation. For example, you can reorder material by just placing a few arrows on your notes. However, these changes become more complex to manage and execute with prepared--that is,

static--materials. For material that changes over time, giving live presentations is often more time-efficient in the long run.

Some of the best tools for capturing content are fairly straightforward to use. Presidia, for example, offers a plug-in to PowerPoint that times animations, synchronizes audio files, and converts presentations to a flash format that you can play from a standard

Web browser. The simple addition of audio plays a critical role in involving the viewer and personalizing an otherwise-dull presentation. Camtasia Studio from TechSmith is ...on your computer and record your actions to show someone else what you did and what the result was. You can

edit captured activity; add audio; and add other highlighting features, such as arrows or hyperlinks. Camtasia Studio provides a similar

effect to having WebEx host a Net meeting for you to talk via phone conference, and Camtasia Studio is a recorded, asynchronous capture. Used

together, slides with audio and links to illustrated processes can effectively demonstrate complex concepts.

#### TOUCH IT TO MAKE IT YOURS

Simply placing material on a computer screen, however, is not teaching. The main challenge of distance learning is that, because students retain more information when they are personally involved, the material has to go beyond mere text. Multimedia presentations help increase retention but at a higher production cost, and they tend to provide a more passive type of interaction.

The best presentations have conditional aspects that allow students to interact with material and test results for themselves. For example, a presentation on resistors would allow a student to create

configurations of resistors using different values. This approach questions that no one anticipated or previously asked. To fill such "holes" in presentations, students still require access to a live expert. Distance-learning instructors can adapt presentations over time to address more commonly asked questions but at continuing cost.

One of the touted benefits of distance learning is that it frees up an instructor's time. However, this "benefit" is a myth. If anything, distance learning, although usually eliminating in-person feedback, creates many alternative feedback channels, such as e-mail, forums, and online surveys, that many students feel more comfortable using exactly because of their more impersonal nature. Additionally, administrative factors increase because distance learning means that instructors must manage passwords and access issues. These issues complicate the process over and above simply signing up for and attending class. With asynchronous materials, many company officials mistakenly believe that they can open the virtual doors of their classrooms to an unlimited number of students. However, as the number...and dialogue, a critical element of learning; in posing a question or giving an answer, a student must exercise his or her knowledge of the material. Additionally--and the most desirable theoretical timesaver of all--students can answer each other's questions.

Several forum models are in development today across the ...example, newsgroups need to manage troublemakers who push users to buy their new book or get free cell phones. They also need to manage confidential material and do housekeeping, such as removing old messages and building FAQ (frequently asked questions) files. Forum services are available from companies such as Yahoo, but control is still an issue. Private forums are available from companies such as Web Crossing, offering the sponsoring company complete control of material and membership with additional management functions, albeit at a higher cost ...post, users may find too few postings or responses to make the forum worth visiting. To give members incentives to post, forums could tie the course grade to posting, limit the number of questions a user can ask based on the number of questions the user has helped answer, or offer ...low-quality postings: Users end up viewing quantity--not quality--as important, and worthwhile postings become lost in a sea of other-wise-less-useful material. Measuring the quality of postings is feasible for a small group but not for large groups. For example, even checking ...questions and good responses to them are candidates for a knowledge base. Extracting this information proves to yet be one of the great challenges of distance learning. It can easily take an hour to process one good question and response, as you generalize the question to widen its scope, edit and rephrase...create the knowledge base for a single chapter in a biology textbook. Useful knowledge bases are expensive to build, and some are short-lived, because content changes substantially and regularly, such as with new versions of tools.

Such knowledge bases are not worth the effort, because developers will not have finished...asking has increased to the point that those initially answering the questions are often no longer able to.

#### THE PERSONAL TOUCH

One major resistance to distance learning is that no one wants to learn from a computer. The more human a presentation appears, the more information students tend to retain, and the longer they appear interested in the material. Many people perceive learning from a computer as inferior to live learning in a classroom. Distance learning gives students more control over learning, but this control is a plus only if the student is an active learner. Many students forget that you...

...from a book; they approach learning as a "you-teach-me" relationship, a passive process in which an expert pours knowledge into someone's head. Distance learning does not solve the problem of motivating students. In contrast, many key traits of distance learning aggravate these issues. However, distance learning does allow those who are motivated to learn faster and more efficiently.

Distance learning does not make sense for small, individualized courses. You simply can't get the economies of scale that justify creating custom material. You also need to account for the lifetime of a student's membership: Are people involved for years or for a few weeks? This factor affects how many times you can reuse materials before you have to revise them. The more students that you serve, the more sense it makes to use distance learning. Note that, as the number of students increases, so does the required quality of the content: Pruning a corporate-policy presentation by two minutes multiplied by 10,000 employees adds up to a lot of saved dollars.

In one approach to distance learning, some companies put evaluation tools with demos on the Web that anyone can download. However, good reasons exist for not taking this tack. The chief one is...

A final challenge for distance learning is to determine whether individual programs are successful. Success is a difficult metric to define. Simply getting lots of customer postings may eat support resources...

...support departments. Additionally, some benefits may be immeasurable:

Many more people view postings than make them. If you have no way of tracking who uses materials and how they use them, you have no idea how useful those materials are and which are worth the cost of maintaining. The purpose of distance learning is to pass on information in a more efficient and less costly manner than other means allow. You need a clearly defined way to determine whether you have met this goal.

Distance learning is an interesting case study because

it reveals many of the problems associated with bandwidth-based businesses. Many business models focus solely on providing consumers with bandwidth or information channels, claiming that content will drive the use of that bandwidth. However, these companies often fail to account for the cost of producing viable content. For example, producing an hour of video for a potential audience of 1000 people is unlikely to make financial sense

or create much more than a "blip" of bandwidth demand in the overall scheme of things. A general perception is that distance learning should be less expensive than live learning, but that perception is often wrong.

Distance learning is not a panacea. However, when you use it as a supplement to traditional methods, it can significantly reduce costs, enhance comprehension, and shift the burden of teaching from experts back onto students. For example, companies could present a four-day course as two days of online background, in which viewers write their questions and bring them to the two days of ...of in-person time, satisfies the students' need for access to an expert who can answer their questions, and elevates the discussion.

The story of distance learning isn't that it can do everything or that it is problem-free. In reality, it brings a new set of problems to the learning table. However, it enables us to do much more than we could before.

#### AT A GLANCE

- \* Quality content is the cornerstone of distance learning, but ...cost.

- \* Online forums enable new avenues for student participation, but they bring with them a whole slew of complex problems.

- \* To maximize the benefits of distance learning, you need a good knowledge base, but building one is probably not worth the effort.

- \* People still need access to a live person to whom they can address their questions.

#### RELATED ARTICLE: Forum-scability issues.

Though distance learning addresses many "geographically diverse" problems, dialogue becomes a challenge in forum environments when people view materials at different times, or asynchronously. Even when moderators keep discussions moving, ...Americ Azevedo from Goldwarp for their contributions to this article.

#### AUTHOR'S BIOGRAPHY

Nicholas Cravotta is communications technical editor for EDN. He teaches a programming course at the University of California--Berkeley using distance-learning technology and may be the first instructor there not to come within 100 miles of campus

during

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**Author Abstract:** ...Wide Web is augmenting user-perceived response times from popular Web sites, especially in conjunction with special events. System platforms that do not replicate information **content** cannot provide the needed scalability to handle large traffic volumes and to match rapid and dramatic changes in the number of clients. The need to improve the performance of Web-based services has produced a variety of novel **content** delivery architectures. This article will focus on Web system architectures that consist of multiple server nodes distributed on a local area, with one of more... ...have been solved. Other issues remain to be addressed, especially at the network application layer, but the main techniques and methodologies for building scalable Web **content** delivery architectures placed in a single location are settled now. This article classifies and describes main mechanisms to split the traffic load among the server... ...purpose, it focuses on architectures, internal routing mechanisms, and dispatching request algorithms for designing and implementing scalable Web-server systems under the control of one **content** provider. It identifies also some of the open research issues associated with the use of distributed systems for highly accessed Web sites.

Categories and Subject...

**Text:**

...In an Internet-based world with no centralized administration, the Web site is the only component that can be under the direct control of the **content** provider. Any other component, such as Internet backbones, Web clients, routers and peering points, DNS system, and proxy servers are beyond the control of any...

...wide-area networks, the rapid adoption of ISDN networks, xDSL lines, and cable modems contribute to reduce network latency.

--The relevance of dynamic and encrypted **content** is increasing. Indeed, the Web is changing from a simple communication and browsing infrastructure for getting static information to a complex medium for conducting personal...

...commercial transactions that require dynamic computation and secure communications with multiple servers through middleware and application software. A Web server that provides dynamic or secure **content** may incur a significant performance penalty. Indeed, the generation of dynamic **content** can consume significant CPU cycles with respect to the service of static **content** (e.g., Challenger et al. (1999)), while

the management of data encryption which characterizes e-commerce applications can be orders of magnitude more expensive than the provisioning of insecure **content** (Apostolopoulos et al. 2000b). The proliferation of heterogeneous client devices, the need of data personalization, client authentication, and system security of corporate data centers and e-commerce sites place additional computational load on Web servers. Indeed, it is often necessary to establish a direct communication between clients and **content** providers that caching infrastructures and **content** delivery networks cannot easily bypass. Caching is a very effective solution to reduce the burden on Web sites providing mainly static **content**, such as text, graphic, and video files, while it is less effective for applications that generate dynamic and personalized information, although there is some attempt...

...2002; Persistence Software 2002; Zhu and Tang 2001).

With the network bandwidth increasing about twice faster than the server capacity, the increased percentage of dynamic **content** of Web-based systems, the need of a direct communication channel between clients and **content** providers, the server side is likely to be the main future bottleneck.

#### 1.1. Scalable Web-Server Systems

Web-site administrators constantly face the need...distributed among the server nodes, so as to improve system performance. Therefore, any distributed Web system must include some component (under the control of the **content** provider) that routes client requests among the servers with the goal of load-sharing maximization. The approach in which the system capabilities are expanded by...

...among the nodes and, if necessary, one or more internal routing devices.

Each Web server can access all site information, independently of the degree of **content** replication. The Web system requires also one authoritative Domain Name System (DNS) server for translating the Web-site name into one or more IP address...

...typically act as data servers for dynamically generated information. The main focus of this survey is on the Web server layer, while the techniques concerning **content** distribution in the back-end layer are outlined in Section 9.

(FIGURE 2 OMITTED)

We analyze now the main phases to serve a user request...Web site. A static Web object is a file in a specific format (e.g., an HTML file, a JPEG image, a Java applet, an **audio** clip), which is addressable by a single URL (e.g., <http://www.site.org/pub/index.html>). A dynamic Web object requires some computation on...

...Web standards, and client code. Therefore, we will focus on dispatching

solutions that occur at system components that are under the direct control of the **content** provider, that is, the authoritative DNS, the Web servers, and some internal devices of the Web system. On the other hand, we do not consider...Wessels 2001), virtual servers (or reverse proxies) (Luotonen 1997), Web proxy accelerators (Rosu et al. 2001).

In this survey, we also exclude solutions where the **content** provider delegates scalability for its Web-based services to other organizations. For example, many Web sites contract with third-party Web hosting and colocation providers...

...multiple Web sites (Almeida et al. 1998; Aron et al. 2000; Cherkasova and Ponnekanti 2000; Luo and Yang 2001b; Wolf and Yu 2001). More recently, **Content** Delivery Network (CDN) organizations undertake to serve request traffic for Web sites from caching sites at various Internet borders (Akamai Tech. 2002; Digital Island 2002...

...servers in a Web cluster.

--Section 8 presents some extensions of the basic system architecture to improve scalability.

--Section 9 outlines the problem of Web **content** placement among multiple front-end and back-end servers, that is orthogonal to this article.

--Section 10 concludes the article and presents some open issues...

also a big impact on dispatching policies because the kind of information available at the Web switch is quite different.

--Layer-4 Web switches perform **content**-blind routing (also referred to as immediate binding), because they determine the target server when the client asks for establishing a TCP/IP connection, upon...

...Web switch. As the client packets do not reach the application level, the routing mechanism is efficient but the dispatching policies are unaware of the **content** of the client request.

--Layer-7 Web switches can execute **content**-aware routing (also referred to as delayed binding). The switch first establishes a complete TCP connection with the client, examines the HTTP request at application the ISO/OSI protocol layers, where the application layer is the seventh.

Other authors refer to switches that perform **content**-aware routing as layer-5 or application-layer switches.)

Web cluster architectures based on layer-4 and layer-7 Web switches can be further classified...packet rewriting and tunneling mechanisms, are

unnecessary.

### 3.2. Solutions Based on Layer-7 Switches

Layer-7 Web switches work at application layer, thus allowing **content**-aware request distribution. The mechanisms for layer-7 routing are more complex than those for **content**-blind routing, because the HTTP request is inspected before any dispatching decision. To this purpose, the Web switch must first establish a TCP connection with...

3.3. Layer-4 vs. Layer-7 Routing. The main advantage of layer-7 routing mechanisms over layer-4 solutions is the possibility of using **content**-aware dispatching algorithms at the Web switch. We see in Section 6.3 that through these policies it is possible to achieve high disk

cache hit rates, to partition the Web **content** among the servers, to employ specialized server nodes, to assign subsequent SSL sessions to the same server, and to achieve a fine grain request distribution...  
...to sustain a throughput up to 20000 conn/sec. To improve scalability of layer-7 architectures, alternative solutions for scalable Web-server systems, which combine **content**-blind and **content**-aware request distribution, have been proposed. They are described in Section 8.

Table I outlines the main features and tradeoffs of the various mechanisms we...

...carried out either by a specific driver interposed between these two layers or by the modified device driver of the server.

The request routing is **content**-blind, because the target server identifies itself only by examining the information at TCP/IP level, such as the client IP address and port. Typically...

...the virtual Web-cluster architecture is represented by the request dispatching. Not only the request routing in a virtual Web cluster cannot take advantage of **content**-aware dispatching, but also the packet filtering based on a hash function is notable to adapt itself to dynamic

conditions when the client requests unevenly...An advantage of HTTP redirection is that replication can be managed at a medium granularity level, down to individual Web pages. Furthermore, HTTP redirection allows

**content**-aware routing, because the first server receiving the HTTP request can take into account the **content** of the request when it selects another appropriate node.

The main drawback is that this mechanism consumes resources of the first contacted server and adds...

...they point to another node (Li and Moon 2001). Such redirection mechanism integrated with a multiple-level DNS routing technique is also used by some **Content** Delivery Networks, such as Akamai Tech. (2002), Mirror Image Internet (2002), and Digital Island (2002).

The drawback of URL rewriting is that it introduces additional for  
**Content** Delivery Networks is increasing due to the seamless integration with standard DNS and the generality of the name resolution process, which works across any IP...

...is to say, the triangulation mechanism does not allow the first server to completely get rid of the redirected requests. Moreover, as triangulation is a **content**-blind routing mechanism, it requires full **content** replication, and does not allow fine-grain dispatching when the Web transaction is carried out through an HTTP/1.1 persistent connection.

Unlike triangulation-based...

...rewriting, do not require the modification of packets reaching or leaving the Web-server system. This allows the server to take into account the requested **content** in the dispatching decision, thus providing also fine-grain rerouting. The HTTP redirection is fully compatible to any client software; however, its use limits the...  
...collect and exchange load information. We do not consider any state information that needs active cooperation from other components that do not belong to the **content** provider.

#### 6.1. A Taxonomy of Dispatching Algorithms

We have seen that in Web clusters the only practical choice among all global scheduling policies lies to first classify the dispatching algorithms among **content**-blind dispatching, if the Web switch works at the TCP/IP layer, and **content**-aware dispatching, if the switch works at the application layer.

We then use the literature classification by distinguishing static and dynamic algorithms. It is to...

...Web switch assigns requests on the basis of some server state information, such as current and past load condition, latency time, and availability. Furthermore, in **content**-aware dispatching, the switch can also consider information about the **content** of the server disk caches.

6.1.3. Client and Server State Aware Policies. The Web switch routes requests by combining client and server state...

...for dispatching algorithms that we have examined so far. We recall that static algorithms as well as server state aware policies are meaningful only for **content**-blind Web switches operating at the TCP/IP layer.

(FIGURE 14 OMITTED)

#### 6.2. **Content**-Blind Dispatching Policies

In this section, we describe the main **content**-blind dispatching policies according to the taxonomy shown in Figure 14, and detailed in Figure 15 with some representative algorithms for each category at the...

...S.sub.2) (S.sub.1) (S.sub.2) (S.sub.3).

6.2.2. Client State Aware Algorithms. Since layer-4 Web switches are

**content** information blind, the type of information regarding the client is limited to that contained in TCP/IP packets, that is, the IP source address and...usually overrides server information for assignment decisions. This means that client past assignments have more importance than server state conditions.

6.2.5. Considerations on **Content**-Blind Dispatching. For a layer-4 Web switch, static algorithms are the fastest dispatching solution because they do not rely on any system state information...

...a static algorithm at the Web switch with a second-level rerouting mechanism carried out by the server nodes. The server dispatching algorithm

is typically **content**-aware and aims to improve load sharing and caching (Carrera and Bianchini 2001; Cherkasova and Karlsson 2001; Ciardo et al. 2001).

Dynamic algorithms have the...  
...have demonstrated that the dynamic Weighted Round-Robin policy compromises simplicity with efficacy at best (Casalicchio and Colajanni 2001; Hunt et al. 1998).

#### 6.3. **Content**-Aware Dispatching Policies

The complexity of layer-7 Web switches that can examine the HTTP request motivates the use of more sophisticated **content**-aware distribution policies. We detail the taxonomy for **content**-aware dispatching shown in Figure 14 with an additional level that considers the

main goal of the dispatching policies. Figure 16 summarizes the taxonomy of the **content**-aware dispatching policies and shows at the bottom level the proposed algorithms that use information about the requested URL for different purposes, such as

--to...

...server caches so to reduce disk accesses (cache affinity);

--to use specialized server nodes to provide different Web-based services (specialized servers), such as streaming **content**, dynamic **content**, and to partition the Web **content** among the servers, for increasing secondary storage scalability;

--to increase load sharing among the server nodes (load sharing).  
(FIGURE 16 OMITTED)

Furthermore, additional information regarding...in the server nodes

and achieves the best cache hit rate. However, the solution combining Web-object partitioning and hash function work well for static **content** only. Moreover, it ignores load sharing completely, as it is difficult to partition the file space in such a way that the requests are balanced...

...partition the servers according to the service type they handle. The

goal is to employ specialized servers for certain type of requests, such as dynamic **content**, multimedia files, streaming video (Yang and Luo 2000). We refer to this policy as to Service Partitioning. Most commercial

**content**-aware switches deploy this type of approach (e.g., BIG-IP (F5 Networks 2002) and Central Dispatch (Resonate 2002)).

The third main goal of the **content**-aware dispatching algorithms is to improve load sharing among the servers. These strategies do not require static partitioning of the file space and the Web...

...static information, the latter to sites providing Web-based services with different computational impact on system resources.

The SITA-E policy partitions dynamically the Web **content** among the servers according to the file size distribution. The Web switch selects the target server on the basis of the size of the requested...

...on theoretical demonstrations, but it assumes that the service time of a request is proportional to its size. This assumption is valid for static

Web **content** only (indeed, predetermining the service time of a dynamic request remains an interesting open problem). Furthermore, the SITA-E policy does not consider that caching...

...on small files.

The other dispatching policies, which do not consider static files only, typically manage heterogeneous services through a static partitioning of the Web **content**. A quite different approach is taken by the Client-Aware Policy (CAP) proposed in Casalicchio and Colajanni (2001). The basic observation is that when the...

...classification for CAP is to consider disk-bound, CPU-bound, and network-bound services, but other choices are possible depending on placement of the Web **content**. To improve load sharing in Web clusters that provide multiple services, the Web switch manages a circular list of server assignments for each class of...because they use client information for cache affinity purposes and server information for load-sharing goals.

The Locality-Aware Request Distribution (LARD) policy is a **content**-aware request distribution that considers both locality and load balancing (Aron et al. 1999; Pai et al. 1998). The basic principle of LARD is to...

...a file to the set of nodes containing it, while the Cache manager dispatching policy relies on a cache manager that is aware of cache **content** of all Web servers (Bunt et al. 1999). Each server provides periodically this information to the cache manager. If the requested object is not cached...

...caching the object, provided that its load is within a threshold over the least-loaded server (Bunt et al. 1999).

6.3.3. Considerations on **Content**-Aware Dispatching. Pure client state aware policies have a great advantage over policies that use also server information, as they do not require expensive and...

...for Web sites providing static information and some simple database information. On the other hand, when we consider Web clusters that provide highly heterogeneous services, **content**-aware policies that aim to share the load among all (or most) of server components, can provide best performance (Casalicchio et al. 2002).

#### 6.4. Analysis of Dispatching Algorithms

In this section, we first compare **content**-blind and **content**-aware dispatching. Then, we give some considerations about pros and cons of using server state information in Web clusters.

##### 6.4.1. **Content**-Blind vs. **Content**-Aware Dispatching.

**Content**-aware dispatching policies can potentially outperform the **content**-blind algorithms as they rely on more detailed client information in making the assignment decision. For example, the LARD algorithm shows substantial performance advantages over the dynamic Weighted Round-Robin strategy when considering static **content** (Aron et al. 1999; Casalicchio and Colajanni 2001).

On the other hand, operations at layer-7 are expensive, hence client state aware policies must limit...

...the client request to a server, the latency time increases and the Web switch can easily become the system bottleneck.

It is important that new **content**-aware dispatching algorithms consider also the heterogeneity of Web-based services and do not focus only on improving cache hit rate of static **content**. The motivation is that the complexity of services and applications provided by Web sites is ever increasing as demonstrated by the integration of traditional Web...

June 2000, Cisco Systems (2002) acquired ArrowPoint, one of the first companies to commercialize layer-7 Web switches; in January 2001, Nortel Networks (2002) entered **content**-aware dispatching market by acquiring Alteon WebSystems that was one of the market leaders. Because of this turbulence, we will maintain a Web page (2...the service type they handle or to provide persistent session support, based on cookies or SSL identifiers. Typically, each commercial product provides a set of **content**-aware dispatching policies. The companies use different names, but the substance is similar. Let us give some examples. In Alteon Web OS (Nortel Networks 2002), the **content**-aware policy is basically a service partitioning algorithm that allows specialized servers to store

specific object types or provide specific services. Hence, the client request...

...the routing mechanism because of patent pending reasons.

As regards the server selection, one-way solutions working at layer-7

typically analyze the HTTP header **content** prior to dispatching the request to an appropriate server. In the ScalaServer (Pai et al. 1998) and

ClubWeb prototype (Andreolini et al. 2001), the Web...

...information in addition to server performance and availability.

Specifically, upon receipt of an HTTP request, the Resonate switch parses

the URL to determine the requested **content** and applies some dispatching rule that may be chosen by the system administrator. If more than

one node is available to serve the request, the Web...strategies have been

implemented, and the Web cluster scalability and reliability is primarily

limited by the network connection to Internet, the best alternative for a

**content** provider that does not want to refer to outsourcing solutions is to distribute multiple Web clusters over different Internet zones.

An interesting idea for improving Web cluster scalability is to combine the performance of a **content**-blind dispatcher (DNS, layer-4 Web switch) with the caching features of a **content**-aware dispatcher, that can be implemented by a layer-7 switch or by a Web server.

A change of the basic Web cluster architecture presented in Section 2

integrates a layer-4 Web switch with two or more layer-7 Web switches that

take **content**-aware dispatching decisions and provide some caching functionality. Indeed, the caches store frequently accessed Web objects and

respond to requests for these objects, thus relieving...

...the work of the cache nodes and limit the percentage of request redirection; however, it achieves a lower aggregate throughput because of

the overhead of **content**-aware routing mechanisms.

A different approach to improve Web cluster efficiency is to perform

**content**-aware dispatching or caching through the Web servers instead of additional layer-7 Web switches. The first dispatching level carried out

by a layer-4...

...one Web server typically by means of a static algorithm. There are various proposals in this sense, that basically differ for the way the Web

**content** is distributed (i.e., replicated (Aron et al. 2000; Carrera and Bianchini 2001) or partitioned (Cherkasova and Karlsson 2001)) and the

system information is shared...from another server. Server load and caching information are periodically broadcasted by each server.

In the prototype proposed by Cherkasova and Karlsson (2001), the Web

**content** is not entirely replicated. Just a small set of the most popular files (namely, core) can be accessed by any server, while the other files...

...information about document location is stable, because the core is determined by analyzing periodically (e.g., daily) the workload access patterns.

#### 9. PLACEMENT OF WEB **CONTENT** AND SERVICES

The scalability of a Web cluster depends also on the methods used to organize and access information within the site. Data placement is...

...distributed databases and cannot be covered in one section of this survey. We outline main ideas and give references for further reading by distinguishing static **content** from **content** that is dynamically generated at the time of a client request.

##### 9.1. Distribution of Static **Content**

When we consider locally distributed Web systems that do not use a

**content**-aware dispatching mechanism, any server node should be able to respond to client requests for any part of the provided **content** tree. This means that each server owns or can access a replicated copy of

the Web site **content**, unless internal rerouting mechanisms are employed. There are essentially two mechanisms for distributing static **content** among the Web servers of the cluster: to replicate the **content** tree across independent file systems running on the servers; to share information by means of a distributed file system, such as Andrew File System (AFS...

...disk. In such a way, each server has to access its own disk, without any

extra communication with the other servers of the cluster. However, **content** replication has a high storage overhead and, even worse, it requires any **content update** to be propagated to all the nodes in short periods of time. An efficient mechanism for updating and controlling the documents should be implemented to...

...before sending it to the client. Each technique has its benefits and drawbacks. The choice for the best solution depends on the size of Web **content**, the frequency of documents **updating**, the required level of data integrity and security, and the possibility of implementing an efficient caching mechanism.

Web clusters based on layer-7 Web switches can use the same two strategies, that is, replicating the **content** tree on each server node or sharing it through a distributed file system. However, they can also use a third alternative by partitioning the **content** tree among

the Web server nodes. This technique has two main advantages. It increases secondary storage scalability without the overhead due to a distributed file system. It allows the use of specialized server nodes to improve responses for different file types, such as streaming **content**, CPU-intensive requests, and disk-intensive requests (F5 Networks 2002; Resonate 2002; Yang and Luo 2000). On the other hand, **content** partitioning can lead to load imbalance produced by the uneven distribution of Web document popularity, because the servers storing hot documents can be overwhelmed by...

...also true that suitable caching mechanisms can alleviate server overload due to hot spots because frequently accessed documents are likely not to require a disk **access**.

Full replication or full partition of Web **content** are **two** opposite choices. If we consider that the **access** patterns to Web files are highly skewed, a partial replication of the most popular objects among all servers and a others could be the most...

...effective solution. By carrying this approach to the extremes, Pierre et al. (2002) propose a sophisticated mechanism that simultaneously use several strategies for replicating Web **content**. Indeed, the traditional static placement of (static) data has potential weaknesses as the access pattern might even change quickly. Hence, it would be interesting to...

...placement approaches that keep statistics about the workload composition and automatically move and/or replicate objects at different Web server nodes.

#### 9.2. Dynamic Web **Content**

In the old days, the Web was largely based on static and read-only information, but now a large percentage of Web sites provide information... front-end Web switch is located between the Internet and the first set of Web server nodes (presentation layer) that run the HTTP daemons. They **listen** on some network port for the client requests assigned by the Web switch, prepare the **content** requested by the clients, send the response back to the clients or to the Web switch depending on the cluster architecture, and finally return to the **listen** status. The Web server nodes are capable of handling requests for static **content**, whereas they forward requests for dynamic **content** to other servers.

(FIGURE 17 OMITTED)

A so-called Web Application Server layer (middle layer) can be interposed between the Web servers and the back...

...can only be contacted by the application servers which, in their turn,  
can only be reached by the Web servers.

The generation of dynamic Web **content** opens several new issues that are beyond the scope of this survey. The alternative solutions depend also on the application software, the chosen middleware and to mechanisms for caching query results and dynamic **content** at different layers (Candan et al. 2001; Degenaro et al. 2000; Oracle 2002; Persistence Software 2002; Yagoub et al. 2000).

#### 10. SUMMARY AND RESEARCH PERSPECTIVES...

...are suitable for locally distributed Web systems. We have proposed an original taxonomy of the architectures, the routing mechanisms and dispatching algorithms. Based on this **material**, we have analyzed the efficiency and the limitations of the different techniques and evaluated the tradeoff among the considered alternatives. In this section, we present

...  
...layer-4 switches (Cardellini et al. 2001b) as well as at layer-7 switches (Chen and Mohapatra 1999; Zhu et al. 2001), where a detailed **content**-aware information allows to achieve performance isolation in Web clusters at a server-level granularity. In particular, resource utilization can be improved by dynamically adjusting...

...conditions (Cardellini et al. 2001a; Zhu et al. 2001).

While layer-4 Web cluster architectures may be considered an almost solved problem, the area of **content**-aware architectures needs further research. Dispatching algorithms that combine effectively client and server information, and adaptive policies are not fully explored yet. Some companies commercialize layer-7 Web switches with very simple dispatching mechanisms that are mainly oriented to statically partition Web **content** and services among the server nodes. Also, the scalability problem posed by layer-7 routing has not been completely solved and noncentralized dispatching algorithms can...

...occurring at the middle-tier let the vast majority of commercial products prefer quite naive dispatching algorithms and solutions. Combining load balancing and caching of dynamic **content** in multi-tier systems is also worth of further investigation.

The actual improvement of the response time as perceived by users comes from a combination of technologies, where the multiplication of **content** provider servers is integrated with geographically dispersed cache servers supported by the **content** providers themselves or by third-party organizations. Techniques for solving the problems and taking advantage of the potentials originated by the cooperation of multiple servers and multiple caches (e.g., dynamic placement of **content**,

data prefetching, consistency) are still in their infancy, as well as the analysis of the mutual effects of **content** delivery caching and load distribution (Doyle et al. 2001). Finally, we observe that most of the topics and algorithms analyzed in this article change completely if we assume that the multiple servers (or Web clusters) of the **content** provider are distributed over the world rather than grouped in a local area.

Table I. A Summary of Local Routing Mechanisms for Web Clusters

		Layer-4	Layer-4	Layer-7	Layer-
7		two-way	one-way	two-way	one-
way					
	Dispatching <b>content-</b> <b>content-</b>	<b>content-</b> blind	<b>content-</b> blind	aware	aware
	Dispatching granularity request	TCP connection	TCP connection	HTTP request	HTTP
	Web switch inbound data flow	in/out- bound...	inbound	in/out-	
	...HTTP, applications	HTTP FTP, ...	HTTP FTP, ...		

Table II. A Summary of Routing Mechanisms for Distributed Web Systems

		DNS	Triangu- lation	HTTP redirection	URL rewriting
-	Dispatching <b>content-</b>	<b>content-</b> blind	<b>content-</b> blind	<b>content</b> aware	aware
	Dispatching page/object granularity	session	TCP connection	page/object	
	Client/server redirection data flow	direct	triangular	redirection	

Overhead(s)      None      operations...com.

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## 20020601

7/K/30 (Item 3 from file: 275)

DIALOG(R)File 275: Gale Group Computer DB(TM)

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...never-ending supply of information has created a need for efficient filters of raw data at virtually any place and any time. The proliferation

of **distance learning** programs in higher **education** is a direct consequence of the demands of an information-based society. The new

literacy for the 21st century and beyond is clearly the ability to utilize

appropriate technological tools in an information society (Evans 1999). During the past decade, the use of technology in instructional delivery,

both traditional and **distance learning**, increased at a seemingly exponential rate. At Santa Fe Community College (SFCC) in Gainesville, Fla., continuous steps are underway to facilitate the redesign of teaching...

...learning environments for faculty and students. Its library provides instructional support through online resources, the digital reference desk

for information access and an entirely new **course** of instruction -- library information science (LIS). In support of institutional goals of incorporating electronic resources and emerging technologies into instructional delivery, library staff teach faculty...

...spanning disciplines from English to statistics. The library's evolving role in a digital age is one that helps to facilitate collaborative

learning by blending **content** information, technology and active learning. In the new teaching and learning paradigm that has been so often espoused (guide on the side vs. sage on...classroom of past decades. Classes invariably hosted a chalk and talk lecture, in which mathematics faculty talked while writing on the chalkboard. Students sat passively, **listened**, and dutifully took written notes.

Project COMPUTE

Faculty in the department applied for and won an NSF grant that became the source of funding for...

...to curricular reform. Faculty members have reported feeling empowered to infuse critical thinking skills into the mathematics curriculum for all students; mathematics classes have been **revised** and restructured, while preserving **content** integrity. Technology has been integrated as a teaching and learning tool in the classroom environment. Faculty members have generated handbooks and instructor manuals and are...

...engage in the learning process and routinely utilize computer technology and graphing calculators as learning tools in the mathematics classroom. Retention rates in pre-calculus **courses** are up, and enrollment in introductory statistics (averaging over 2,100 in annual enrollment from 1996-1999) has never been higher.

Today, an observer can...

...mathematics and statistics faculty owns at least one graphing calculator. Students are either required or encouraged to acquire a graphing calculator, depending upon the mathematics **course** in which they are enrolled. Two state-of-the-art computer labs are occupied by day and evening classes (at or above the level of...

...has changed significantly. These changes have occurred above and beyond the use of technology as an electronic teaching assistant. Multiple pathways are provided through learning **materials** to accommodate varying learning styles. The current active mathematics classroom is one that is noticeably different from the traditional passive mathematics classroom. It is teeming...

...steadfast. Collaboration with the library staff of SFCC is an ideal example of the manner in which this commitment is actualized through the Introductory Statistics **course**. The **course** should utilize an active learning approach with ongoing interaction among students and between students and the professor. The conventional lecture mode of instruction is de...

...research paper with full citations in American Psychological Association (APA) format, and a required oral presentation to the class using PowerPoint. The professor of the **course** works in concert with SFCC

reference librarians to guide students in searching for data sources, in establishing reference citations and bibliography, and in submitting papers that use the APA format. A basic goal of the **educational** partnership is to provide an **online** network of **learning** resources, which enable the students to enhance research skills, interact in a collaborative learning environment, and improve oral and written communication skills.

Library Instruction at...instructional delivery. Accordingly, the college library operates as a learning resource center (LRC) and exists to support student needs for information. The library currently offers **two** research **courses**: Electronic **Access** to Information and Introduction to Internet Research. The SFCC Library research skills **course**, Electronic Access to Information, is a one-credit **course**, meeting for 15 contact hours. Initially offered in the spring semester of 1995, the **course** leads students to a discovery of the many electronic resources available to them through the library databases. A significant portion of the **course** is devoted to research strategy using Boolean logic. Specific databases studied are LINCCWeb, WebLUIIS, FirstSearch, and Britannica Online. The SFCC Library research skill **course**, Electronic Access to Information, is a one-credit **course**, initially offered in 1998. This is a Web-based **course** focusing on methods of accessing information resources available through the Internet, including FirstSearch and LINCCWeb. Those enrolled will learn how to design effective search strategies...

...Sherry Dupree, Ed. S., reports, "SFCC librarians have taught more than 260 classes -- by faculty request -- in the 14 months since the online registration for **courses** in LI began. On average, 16 classes were taught per month in 1999. The 260 classes that have been taught represent a 93% response rate...

...as helpful and accommodating in providing holistic, quality education to SFCC students. Evaluations from the research strategy workshops and library instruction classes indicate that the **courses** are considered useful and important to student participants. The internal partnership between faculty and reference librarians at SFCC is a collaborative union that forms an...

...been featured as an innovative community college educator in Scientific Computing and Instrumentation Magazine. Evans teaches statistics classes in the synchronous classroom, as well as **online** via the asynchronous **distance learning** environment. She makes frequent presentations at regional, national and international conferences on the topic of integrating teaching, active and collaborative learning, and

technology. Evans recently...

**20010101**

7/K/31 (Item 1 from file: 631)  
DIALOG(R)File 631: Boston Globe  
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**Text:**

If rock made Beethoven roll over, what would he think of students **listening** to his music online for college credit?

He'd have to get used to it, say universities.

Faced with increasing competition for students and pressure to stretch resources without straining finances, universities are developing more appealing hybrid **courses** that combine online technology and class time.

"If universities don't adapt, they're educational road kill," said Northeastern University professor Anthony De Ritis, who created the Beethoven **course** where students **listen** to music selections online, read assigned **materials** about the great composer online, and take quizzes online that are instantly timed and graded.

His students, De Ritis notes, don't get that glazed...

...and should go."

Still, universities are traveling the e-learning road at a rapid pace.

Roughly 75 percent of all universities offer one or more **courses** online and 25 percent to 30 percent offer a substantial number of **courses** taught at least partially online, according to Samuel Dunn, vice president for academic affairs and professor of business and mathematics at Northwest Nazarene University in...

...base of tradition, faculty, and buildings will evolve and adapt. "The market for e-learning is expanding rapidly," he said.

At Northeastern, the number of **courses** using technology has more than doubled during the past academic year, said Patrick Plunkett, special assistant to the university's provost. During the winter 2001 academic quarter, about 2,100 students were enrolled in computer-enhanced **courses**, and the college expects that figure to double in the fall.

The Beethoven **course** ([www.beethoven.neu.edu](http://www.beethoven.neu.edu)) started in the fall

of 1999, part of a faculty development program spearheaded by Stellar who wanted to see how e...

...to \$7,000 for a laptop, scanner, and digital camera to create a Web site for a class to be taught partially online.

The Beethoven **course** does not reduce "seat time," the time students spend in the classroom, but uses online technology to enhance the experience.

Students meet for the usual 30 sessions, but **before** coming to each class they must read assigned **materials** or **listen** to music online. Results of an online quiz are immediately available to the student and De Ritis - and reveal who has done the reading and...

...he said.

Christina G. Zolko, a sophomore, liked the 24-7 access the Beethoven class provides, from notes and lectures to quizzes, posted grades, and **audio** links.

"Everything is therefore easily accessible, even at 2 in the morning, when you decide to drop your professor an e-mail with a pressing...

...Beethoven class was her first online. "I would definitely take another class online. It makes my life easier and more flexible," Zolko said.

She sees **online education** as the wave of the future, but thinks the Web should still only enhance classes. "Nothing replaces the classroom lecture environment," Zolko said. "The need...

...a university-wide competition to support the integration of technology in the classroom. The \$500,000 fund provides \$25,000 grants to faculty teams to **revise courses** to include computer-assisted instruction.

The university also is offering teachers workshops on how to construct a Web page, plan and organize Web sites, post...

...online discussions and virtual chats.

Determined not to become "education road kill," De Ritis, for one, already has received a grant to create another hybrid **course**: Computer Literacy for Musicians.

**Caption:**

PHOTO

Northeastern student Christina Zolko playing a mock violin inside a **listening** room at the Snell Library. The Beethoven class was her first online. / GLOBE STAFF PHOTO / MATTHEW J. LEE

**Descriptors:**

**INTERNET EDUCATION** NAME-DUNN

010715

7/K/32 (Item 1 from file: 47)

DIALOG(R)File 47: Gale Group Magazine DB(TM)

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...Three panelists will illustrate how non-verbal communication influences daily living and cultural sensitivities in public places like supermarkets, shopping malls, recreation centers, and of **course**, libraries. The application of non-verbal communication techniques for wall treatments, flooring, lighting, furniture, and window design have dramatic effects upon the renovation or construction...

...what they want.

Communication Skills for Managers

ALA-APA

Sunday, June 27, 9:30 - 11:00 am

Gain insights for improving communications skills (speaking and **listening**) to be a better manager and advocate for your staff.

New Visions, New Voices: New Leaders Speak on the Future of Libraries

and Librarianship

ALA...

...be on how each marketing effort was developed and what they would do differently. A brief introduction to the ACRL @your library marketing campaign and **materials** will be included.

Fund Fare

LAMA-FRFDS

Monday, June 28, 10:30 am - 12:00 pm

This program will provide an overview of Fundraising Basics...

...on library structure, services and functions over the next 10 years  
LITA

Monday, June 28, 8:30 am - 12:00 pm

The disappearance of print **materials**, especially journals, is having profound effects on academic libraries and the communities they serve. Many staff duties are changing drastically. Faculty members have begun to...

...media specialist to a conference, or honor a great administrator.

Here

is the inside scoop on how to win one of the ten AASL Awards. **Listen** to how previous winners did it, ask questions, and get ready to be honored next year.

Speaker: Melinda Greenblatt, Prog. Dir., Library Connections, New York...

...students to make informed choices and expose them to our cultural heritage. Simultaneously, students must act ethically by citing sources. As

the controversy over digital **content** intensifies, librarians must understand the commons and copyright, and the dangers of software encryption and digital rights management. Although copyright law and software technology are...GLBT) parenting on the rise and a steadily younger age for coming out, children's and YA librarians are faced with a higher demand for **materials** that deal with GLBT themes. Learn about strategies and resources for identifying, purchasing and promoting GLBT literature for younger populations. Bibliographies and best practices from

...

...12:00 pm

If teaching about the Holocaust is more than just reading the Diary of Anne Frank or Night, where can one locate instructional **materials** appropriate for the study of this most tragic events of the 20th Century? A high school library media specialist and Madel Fellow with the United...

...We will present examples of this literature along with the tools needed for both the evaluation of your present collection and the selection of new **materials**.

Speakers: Donald E. Wilson, Palmer Schools of Library and Information Science, Long Island University; Lorraine Tedesco, Palmer School of Library and Information Science, Long Island...

...Kathleen Horning, Director, Cooperative Children's Book Center; Denise Fleming, Author and Illustrator; Lois Ehlert, Author and Illustrator; Donald Crews, Author and Illustrator

Early Literacy **Content** in Storytimes: Added Value

PLA  
Saturday, June 26, 10:30 am - 12:00 pm  
Research conducted by the PLA/ALSC emergent literacy initiative demonstrated positive...

...Participants will view lively demonstration with breakout sessions to follow. Participants will have an opportunity to ask questions, share ideas and gather logistical information and **materials**. This program is recommended for new children's librarians and seasoned professionals looking for new and different ideas.

Program This: After-School Programming 101  
ALSC...

...Map & Imagery Library Experience  
Potholes on the Information Highway: Improving Access to Local Government Information

Management Tools and Issues in Digital Reference  
Digital Information & Technologies

**Content** Management Systems for Library Web Sites

LITA

Saturday, June 26, 8:30 am - 12:00 pm

**Content** management ensures a consistent level of professionalism on large and complex library Web sites. Learn how two libraries have taken different approaches to manage the...

...Bloomington; Laura B. Cohen, Network Services Librarian/Webmaster, Univ.

at Albany, SUNY; Dallis, Information Commons - Undergraduate Services, Indiana Univ., Bloomington

Improving Online Access to Original **Materials**: Current Research

ALA

Saturday, June 26, 1:30 pm - 3:30 pm

Access to original manuscript **materials** has been limited to onsite use or poor substitutes, such as microforms. New research at the California Institute of Technology and the University of Kentucky could transform **access** to these **materials**, which include sought **after** genealogical records, by making machine recognition of handwriting a real possibility and by applying new digital restoration techniques to completely inaccessible objects such as scrolls...

...1:30 pm - 3:30 pm

Juried papers on electronic services.

Lots of Copies Keeps Stuff Safe (LOCKSS): A Solution for Archiving

and Accessing Web **Materials**

ALCTS-SS

Saturday, June 26, 1:30 pm - 3:30 pm

The LOCKSS Program enables institutions to locally collect, store, preserve and archive authorized contents by creating low-cost, persistent digital caches of authoritative versions of Web-based **content**. Through LOCKSS, librarians have the opportunity to retain local collection control of **materials**, particularly e-journals, delivered through the

web while preserving the functionality of the original web based **content**. This program will present an overview of LOCKSS, including its philosophy, technology, current development, and the opportunity to participate.

Statewide Portals: Policies, Practices, Politics  
ASCLA...

...Library & Information Svcs; Tom Sloan, Executive Director, South East Florida Information Network (SEFLIN); Carol Nersinger, Director of Library Development, New Jersey State Library

E-Book **Update: Content**, Technology, Standards

LITA

Saturday, June 26, 4:00 pm - 5:30 pm

E-Books are not dead! Steady progress is being made in publishing,  
marketing...

...for an Uncertain Future

ALCTS-CMDS

Sunday, June 27, 1:30 pm - 3:30 pm

This program is designed to address future trends in the **content** and pricing of electronic products. Panelists will discuss the biggest challenges faced by their library or organization related to electronic resources; the challenges they expect...

...Program (FSU)

Telling Our Stories Now: Women's Archives in the Digital Age  
ACRL-WSS

Monday, June 28, 8:30 am - 12:00 pm

Archival **materials** are more accessible than ever before as libraries have become important **content** providers for the Internet and commercial databases. This panel will discuss the impact of electronic access and digitization on archives and special collections. Hear how...

...Young Adults

AASL/Highsmith Research Grant Award Forum

Copyright and the Commons

Who Owns Snow White? Copyright Issues for Youth Services

Librarians

Digital Info. & Technologies

**Content** Management Systems for Library Web Sites

To Save or Not To Save? Strategies for Protecting Patron

Information

Top Technology Trends: A Conversation with LITA Experts

**Distance Learning** Passe?

Issues & ...1:30 pm - 3:30 pm

Speakers will discuss and demonstrate examples on how can we speak freely, and publish freely on the environment.

Charting **Courses**: Excellence in Diversity Research

ALA-DIVERSITY

Saturday, June 26, 4:00 pm - 5:30 pm

Recipients of the 2003 Diversity Research Grants will share the...

...to democracy and intellectual freedom--are threatened by the rapid consolidation of media. Learn from a panel of experts what libraries can do

to provide **materials** and information presenting all points of view on current and historical issues to their communities now that big media

are getting bigger and presumably less...

...works; a listing of who's who in the field; and updates and insights on

how to get involved in your community.

Speakers: Stacie Brisker, **Audio**-Video Librarian, Cleveland Public Library; Carolyn Neal, Collection Management Librarian, Cleveland

Public Library; Joel Bangilan, Branch Manager, Houston (Tex.) Public Library

Let's Talk About...

...Wertheimer, Assistant Professor of Library and Information Science, University of Hawai'i; Taro Miura, Research Associate, Graduate School of

Education, Tokyo Univ.

Creating Culturally Sensitive **Materials** for Children's Sessions

ALA-SRRT

Sunday, June 27, 1:30 pm - 3:30 pm

Publishers, editors and literary agents discuss challenges in identifying, nurturing Leader **Materials** Access Team, ...Library Management Consultant

Interested in Collection Management & Technical Services? You may also be interested in these programs

Digital Info. & Technologies

Improving Online Access to Original **Materials**: Current

Research

Lots of Copies Keep Stuff Safe (LOCKSS): A Solution for Archiving and

Accessing Web **Materials**

E-Book **Update: Content**, Technology, Standards Ebook

Program

Who's Driving the E-Resource Collection Bus? GPS for an Uncertain Future

Telling Our Stories Now: Women's Archives in...

...ACRL-SEES; ALCTS-CCAAM

Saturday, June 26, 8:30 am - 12:00 pm

As the incorporation of Unicode gains momentum, libraries with large collections of **material** in non-Roman scripts increasingly face the challenges of implementing Unicode locally. This panel will explore the most recent development and implementation issues affecting our...  
...Spanish-speaking library patrons, with an emphasis on the fluid boundary

between the "domestic" and the "international." Libraries have built valuable collections of Spanish-language **materials**, but access is hindered by English-only subject headings. The program will feature

initiatives to provide culturally appropriate access, and will stimulate thought about what...

...a springboard to a fuller training experience in a preconference at 2005 Annual. This preconference is itself expected to develop into a series of institute **courses**.

Speaker: Martha Yee, Cataloger Supervisor, Univ. of California-Los Angeles; Ana Cristan, Cataloger, Library of Congress; Robert Maxwell, Special Collections/Ancient Languages Catalog Librarian, Brigham...

...Reviews? Librarians and Publishers Need Them!

RUSA-CODES

Saturday, June 26, 10:30 am - 12:00 pm

Authors, librarians, and publishers use reviews to select **materials** and improve their products. How are reviews done and how are they used in a practical manner by the library and publishing world?

Speakers: Kathleen...

...30 pm

The demand for efficiency in acquiring and processing library collections has tended to push handling into ever fewer streams. This panel uses Slavic **materials** as a case study to discuss the issues surrounding the organization of these technical functions.

Speakers: James G. Neal, Vice President for Information Services and ...

...Outreach? You may also be interested in these programs

Children & Young Adults

Intercultural Programs: The Joy of Discovering Each Other

Booktalking

with Pizzazz

Early Literacy **Content** in Storytimes: Added Value

It Works! Successful Programs for School Age Children

Creating the Leaders of Tomorrow Through the Advisory Boards of

Today

Program This...

...many resources that guide this discussion.

Speaker: Dr. Bernard Vavrek, Clarion Univ., Center for the Study of Rural Librarianship

Going the Distance: Librarians Supporting Online **Courses**

RUSA-MARS

Saturday, June 26, 8:30 am - 10:00 am

Librarians are taking active roles in **online learning** in both academic and public libraries. In academia, librarians may have a presence in web-based **courses**. In public libraries, innovative programs can bring traditional learning opportunities to the Web.

Librarians entering the virtual environment frequently need training and support for adapting...

...a public library.

Interlibrary Cooperation and Resource Sharing to Better Serve Distributed Learners

ACRL-DLS

Saturday, June 26, 1:30 pm - 3:30 pm

As **distance learning** programs continue to expand, library users increasingly have multiple affiliations, use multiple libraries, and are geographically distributed. With the added concern of budget cuts, librarians...

...Dr. Shiou-San Kuo, Director, Florida Sinkhole Research Institute, Univ.

of Central Florida; Dr. Hugh E. Willoughby, International Hurricane Research Ctr., Florida International Univ.

Is "**Distance Learning**" Passe?

LITA

Monday, June 28, 8:30 am - 10:00 am

The practice of enhancing classroom teaching with web-based **courseware** is commonplace. Chat reference services can be used anywhere, even within the library. Many patrons now receive documents electronically from interlibrary loan. With numerous electronic...

...to all library patrons, is the need to distinguish between "distance"

and "on-campus" becoming less necessary? This panel will address how technologies developed with **distance learning** in mind now have broader use.

...to local government information? What problems exist in the flow

of local government information? How do libraries access this information?

Learn about the valuable research **material** often hidden within local documents, and about innovative techniques used in some cities to make this

**material** available to the public.

Speakers: Mary Martin, Reference Librarian for Business and Law, Claremont Colleges; Yvonne Wilson, California and Orange Co. CA Librarian, UC-Irvine...

...managing and marketing your library's literacy program is more important

than ever before. This session is designated to provide you with the strategies, tools, **materials**, and resources to: develop the fundamentals of a step-by-step plan for expanding or enhancing your library's literacy services; identify strategies for effectively...

...Adults

How School Librarians can teach reading strategies Information Inquiry: Key Words, Concepts, & Assessments for Literacy

User Svcs. & Outreach

Going the Distance: Librarians Supporting Online **Courses**

Information Literacy

Bridging the Gap: How Well are We Serving Our Students' Needs as They Move Along in Their Learning Careers?  
ACRL-CJCLS  
Saturday, June...

...12:00 pm

Panelists serving students at the high school, community college, four-year college, and research university library level will demonstrate how their online **tutorials** and web sites are being used to support their students' current needs and prepare them for the next step in their learning careers. Needs of students at satellite campuses, taking online **courses**, day and evening/weekend students, and life-long learners will also be addressed.

Speakers: Mary Smither, Head, Media Department, George Jenkins High School, Lakeland, FL...

...Librarian, Prince George's Community College, Largo, MD; Sara E. Crest, User Instruction Librarian, Towson University (MD)

BCALA - Educating the Educators: Creation of Info. Literacy **Course** for Black Studies Faculty

AFL

Saturday, June 26, 10:30 am - 12:00 pm

This program will discuss information literacy standards for the discipline of...

...major challenge and opportunity facing academic libraries. Librarians

are actively using the web to provide resources and services, yet many lack sufficient understanding of how **online** learners **learn** and use resources and how to best present information and services in this medium.

This program will address human factors in information design, best practices in **online learning**, and how to use effective design in a library setting.

Speakers: Michael Newlin, Psychology Department, Univ. of Central Florida; Jerilyn Veldof, Univ. of Minnesota Libraries...

...has been recognized for its role in expanding diversity in law schools and law-related professions. It continues to be a rigorous two-year interdisciplinary **course** of study for upper-level undergraduate students. Join LPSS instructional librarians and help create sample student outcomes for LDP using the Information Literacy Competency Standards... Services

Best Practices in Serving Latino Youth

AFL-REFORMA

Attracting the Youngest Patrons

ALSC

Intercultural Programs: The Joy of Discovering Each Other	ALSC
Early Literacy <b>Content</b> in Storytimes: Added Value	PLA
Program This: After-School Programming 101	ALSC
Together is Better: Creative Collaborations Help	ALSC
Ideas to Implement @Your Library	AASL...

...1:30 pm - 3:30 pm

Monday 1:30 pm - 3:30 pm

Monday 2:00 pm - 4:00 pm

Subtrack	Program Title	ALA Unit
	<b>Content</b> Management Systems for Library Web Sites	LITA
	No Conflict Exhibit Time	
	Improving Online Access to Original <b>Materials:</b> Current Research	ALA
	Research in a Weird World	ALA-LRRT
	Lots of Copies Keeps Stuff Safe (LOCKSS): A Solution for Archiving and Accessing Web <b>Materials</b>	ALCTS-SS
	Statewide Portals: Policies, Practices, Politics	ASCLA-SLAS
	E-Book <b>Update: Content</b> , Technology, Standards	LITA
	Copyright Basics for the Digital World	ACRL
	Automating Your Bookmobile: Satellites and Beyond	ALA-OLOS
	To Save or Not To Save? Strategies...	

...Libraries

Censorship of the Written Word: Still Alive and Kickin'

Global Issues IRTF Librarian Responses to Imperialism

Speak and Publisher Freely on the Environment

Charting **Courses**

: Excellence in Diversity Research

its From the Outside In: The Library in the Life of  
Historical Users  
Cultural Democracy and the Informatio Commons  
No Conflict...

...Langston

Hughes to Tupac Shakur

Women's Voices AFL-FOLUSA

Reading at War: Books and Libraries in ALA-LHRT  
World War II

Creating Culturally Sensitive **Materials** ALA-SRRT  
for Children's Sessions

No Conflict Exhibit Time ALA

The Annual Stonewall (GLBT) Book ALA-GLBT  
Awards \$

Poetry and Libraries: Programming for ALA...

...3:30 pm

Subtrack	Program Title	ALA Unit
	What is the Future of Rural Libraries	ALA-OLOS
	Going the Distance: Librarians Supporting Online <b>Courses</b>	RUSA-MARS
	Interlibrary Cooperation and Resource Sharing to Better Serve Distributed Learners	ACRL-DLS
	No Conflict Exhibit Time	
	President's Program: Access for All!	ASCLA
	Come Dance...	

...Us: Library Collaborations LAMA-SASS  
and Partnerships

Narrative Nonfiction: Entering a New Golden ALA-PUBLISHING  
Age

MAGERT	Florida Geography: Immigrants, Hurricanes and Sinkholes	ALA-
" Passe?	Is " <b>Distance Learning</b> " LITA	
	BCALA - Programming for Pennies	AFL
	Results and Recommendations of the American Library Association Task Force on Rural School, Tribal and Public...3:30 pm	ALA-OLOS
	Monday 8:30 am - 12:00 pm	
Subtrack	Program Title	ALA Unit
	Bridging the Gap: Methods of Information Literacy and <b>Tutorials</b>	ACRL-CJCLS
	Educating the Educators: Creation of Info. Literacy <b>Course</b> for Black Studies Faculty	AFL-BCALA
	Pedagogy and the Online Learner	ACRL-EBSS
	Interactive and Collaborative Curricular Learning Communities	ACRL-LPSS
	Wrestling With Research: A Half-Day...	

**20040301**

7/K/33 (Item 2 from file: 47)  
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...seriously considering installing Internet filters.

CIPA states that libraries must install a technology protection measure (such as a filter) that protects against visual depictions of **material** that are obscene, child pornography, or harmful to minors to qualify for E-rate discounts for Internet access and support under the Telecommunications Act, 47...

...costs of Internet service or computers that have access to the Internet.

Despite being named the Children's Internet Protection Act, CIPA restricts access to **content** for adults and children alike. The law mandates that all computers be filtered, including staff computers.

Some libraries have been using filters in the children...

...Discuss the legal ramifications of any particular filtering strategy

with your library's legal counsel.

Scope

This report explores the issues associated with using Internet **content** filters in libraries. Throughout the report, specific products will be referenced and the differences discussed.

Readers who wish to understand the myriad issues at work...

...patron privacy, and CIPA compliance come into play.

\* Chapter 5 looks at the future of library filtering.

Chapter 2

HISTORY AND DEVELOPMENT OF FILTERS

Internet **content** filters have been available since the mid 90s. The first filters to appear on the market relied largely on keyword

blocking, a simplistic and ineffective way to filter **content**.

Keyword blocking occurs when the searcher uses a word on the filter's

long list of forbidden words, and that word is "disappeared." For example

...

...simply be conducted as cancer, as if the user had not typed the word breast at all.

These simplistic filters even "disappeared" words from the **content** of a page resulting in pages that made no sense or that stated something quite different from the author's intent. One such incident reported...

...lost because of the presence of a single word.

These early filters were designed for parents to use in the home where concerns about overblocking **content** were not high. (4)

Although most of these early products are still available and still

marketed to parents, several new factors affect the filtering marketplace

...

...even entire countries.

As a result of this expansion, the function of Internet filters has

changed. Where the early filters were designed to block all **content** deemed inappropriate for children, many of today's filter companies are devising new and creative ways to categorize the entire Internet thus providing their customers with the ability to block a broader range of **material**.

Most filters allow for the filter administrator to control, to a large extent, what is blocked and what is allowed. In most cases, however, the...

...s categories are not usually made public or even available to libraries

on a nondisclosure basis. Rather than publish lists of URLs contained in

each **content** category, filter companies describe each category and sometimes provide examples of pages that belong in it.

In devising a blocking strategy, the filter administrator has...

...That category lists are not publicly available is one of the primary complaints lodged against filter companies. Filter companies argue that their category lists or **content** databases, as this collection of categorized websites is called, is a major component of what their customers pay for (and their competitors would benefit from...

...and their associated URLs. These products are often based on open-source

products such as Squidguard or Dan's Guardian.

Network-based filters with viewable **content** databases include: Squidguard, Dan's Guardian, Netpure, EngagelP, IF-2K, Corporate Guardian, CyberSetting, and Netsweeper.

How an individual site ends up in any given category...

...of the filter largely depends on how accurate the customer believes the classification process is and how useful the categories are. As a result, the **content** categories often shed light on who the filter company is marketing their product to and what they understand their customers are trying to accomplish with...

...requirements are different from a library's. The influence of these marketplace pressures has changed filters dramatically over the years, particularly in how categories of **content** are defined.

Influence of faith-based organizations on filter categories

In attempting to serve their religious constituencies, filter companies have added categories of **content** that meet the needs of people sharing a certain religious or moral point of view. Consider the following Websense categories:

Religion

\* Traditional

\* Nontraditional

Abortion advocacy

\* Pro life

\* Pro choice (5)

Saudi Arabia uses Websense for "preserv(ing its) Islamic values, filtering the Internet **content** to prevent the **materials** that contradict (its) beliefs or may influence (its) culture." (6) In her article, "Internet Filters: The Religious Connection," (7) Nancy Willard of the Center for...

...companies including Symantec's I-Gear, N2H2's Bess, 8e6Technologies' X-Stop, Solid Oak Software's CyberSitter, and others. She suggests that many of the **content** categories users can choose to block have been added to address the views of these faith-based groups.

Here are some examples of categories likely...

...swinging lifestyles, and

same gender or transgendered relationships.

Influence of businesses on filter categories

Religious groups aren't the only ones who have influenced the **content** categories found in today's filters. An even larger number of categories have been developed to address employers' desire to prevent

their employees from engaging...

...play games or engage in activities seen by employers as nonproductive.

Filtering products designed for the business market generally include many categories that address both **content** (usually sexually explicit **material**) and productivity concerns.

These filters, such as the example that follows, attempt to provide a category for every website on the Internet. The goal is...

...i:filter categories

Adult providers	Internet service
Advertising sources	Law and legal services
Business and consumer products/services	News and weather nonmonitored sites
Business conferences, <b>online training</b> , Personals, dating, and <b>distance education</b> and personal websites	
Charitable and nonprofit organizations	Political
Chat rooms, forums, and online communities engines	Portals and search
Complaint sites organizations	Professional
Education organizations and...	

...with information the patrons need to challenge the decision to block the

page, to be advised of any recourse for avoiding the block, and to **learn** more about the library's **Internet** use policy (IUP).

Bandwidth and protocol-based categories

Libraries sometimes use filters to restrict what patrons can do on library computers including: using chat and...

...categories can be used to limit many of these activities.

Many Web pages rely on certain types of protocols to function. For

example, to download **content**, the FTP protocol is required. To participate in IRC, the IRC protocol is required. To log in to another server, the telnet protocol is required. Many filters can be configured to prevent certain protocols from being used.

Bandwidth-intensive activities users engage in over the Internet include online chatting, playing **audio** and video files, playing

online games, and participating in videoconferences. Filters can prevent users from accessing pages with chat rooms or MP3 or movie files...

...images but not text

Most filters today are designed to block entire pages, not just the images on the page. The filter companies evaluate the **content** on the page and then categorize those pages. When the filter administrator chooses a category to block, all the pages in that category are blocked...

...or disallowing certain protocols (FTP, telnet) is most often an 'always allowed' or 'never allowed' prospect. Limiting the bandwidth activities or the protocols within specific **content** categories isn't usually possible.

For example, preventing images from being displayed when a page is categorized as 'pornography' might be more useful than blocking...

...images. This less-restrictive approach would comply with CIPA, which only requires libraries to prevent access to visual depictions of certain types of sexually explicit **material**.

Turning off images for all websites, in every category, however, would not be desirable. To achieve the desired results, the product must allow the filter...

...a category. Only a small number of filters offer this feature.

Some libraries have created their own add-on program to block images within a **content** category. Tacoma Public Library uses Surfcontrol in combination with a script its technical staff wrote to block images and graphics on any pages identified as inappropriate by the filter. Its librarians say this creative solution brings them into compliance with CIPA

while reducing the amount of **content** being blocked because no text is blocked in the library, only certain images.

Finding and cataloging websites

Every filter company has devised its own strategy for finding and classifying Web **content**. Business-oriented filters with **content**, bandwidth, and productivity categories must find and then catalog a larger percentage of Internet **content** than a simpler product targeted at home users. Products for home and school use have developed classification schemes that can be used to limit access to Internet **content** based on the age of the Internet user.

A classic example is We-Blocker, a free product designed exclusively for school and home use. It...

...a change. Any suggestion by a visitor for how to categorize a Web page will likely be based on a more thorough evaluation of the **content** than the automated tools the filter company relies on.

Current methods of filtering

To filter Internet **content**, one of two methods is generally used: pass-through or pass-by technologies. The most common approach to filtering is a pass-through method.

With...

...retrieved from the Internet. They determine on-the-fly whether access to the page is allowed. These types of filters are usually referred to as **content** filters.

URL filters

URL filters rely on populating a list, or database, with URLs.

Each

URL is associated with one or more categories.

When the...

...returned by the search engine, they are able to collect the most popular

URLs and quickly file them in the most suitable category of their **content** database.

Here's a simplification of how filters find and classify Web pages:

1. Search: shocking sex acts
2. Remove any from domains ending in...

...filter companies actually find and classify Web pages is more complicated. Many filter companies have designed their own special search tools designed specifically to locate **content** in their target **content** categories. And they have developed sophisticated programs for conducting the searches as well as weeding the pages that don't fit.

These types of filters...

...URL accessed by the user with the URLs contained in the filter's database. When the filtering software finds a match, it looks at which **content** category the URL was found in.

If the category is a blocked category, the end user will be shown the

default block page instead of...

...display (see Figure 2).

(FIGURE 2 OMITTED)

If the URL filter being used is one simple block list, rather than lists of URLs broken into **content** categories, the filter simply has to check for the presence of the URL in the block list. If it is there, the default block page is displayed. If the URL isn't on the block list, the page is retrieved.

**Content** filters

Another way filters work is by analyzing the **content** of the page on-the-fly. That is, instead of precategorizing URLs, only the URLs

retrieved in response to the search are categorized.

The browser...

...classified into. Like the URL filter, it will then present the end user

with a block page or the requested page, depending on whether the **content** category it was classified into was selected for blocking.

Every company doing **content** filtering has developed some kind of proprietary technology for quickly analyzing **content** on the page. To be effective, the analysis must be quick enough so as not to delay the

retrieval process. The software engineering that goes into these **content** analyzers has become more sophisticated than its early predecessor--keyword blocking. Although some analysis of words in the URL

and on the page is part of the process, other steps are involved in evaluating the page and placing it into a **content** category.

Combination products

Because of the time involved in conducting the analysis step, some

**content** filters incorporate a URL database component. Sites that have been processed by the artificial **content** recognition engine (Figure 3), for example, are placed in their **content** category and then registered in a database.

Conversely, some **content** filters build up a local database of sites that have been accessed by users at a particular location and store that database locally--at the...

...depending on how the local administrator has set up the filtering profile for the end user.

So far, the methodology used by these so-called **content** filters then is the same methodology as is used by the URL filter. The difference with a **content** filter is that if the URL is not contained in the database, the analysis step is conducted and the site is dynamically evaluated and categorized...

...so the next time the same site is accessed, the analysis will not have to be repeated.

Some URL filters also incorporate an element of **content** analysis into the product to prevent the problem of users attempting to access a site that has not yet been classified into a **content** category.

For example, CyberPatrol, primarily a URL filter, uses artificial intelligence as well as keyword blocking to supplement its URL filter, known as the CyberList...

...database. CyberPatrol also can filter offensive text-based words and phrases from Web-based e-mail."

Pros and cons of two techniques

URL filtering and **content** filtering each has advantages and disadvantages. The primary advantage of URL filtering is that blocked Web

pages are not allowed to even enter the network. This blocking saves bandwidth and ultimately reduces the load on the network.

With **content** filtering, the Web page must be retrieved for the analysis to be performed. Even those pages that will never be viewed are

dragged through the...tend to be easy to manage and install but are suitable only for children's computers used at home due to the focus of the

**content** categories and sometimes simplistic blocking technology and inability to override.

If the library is planning to filter more than two or three PCs, librarians will...

...hardware and technical staff.

ISPs use many of the same filters available to businesses so find out

what filter the ISP uses and study the **content** categories just as you would if you were considering buying the filter yourself. In addition, evaluate the ability to configure and control unblocking and disabling...

...all as 'sex ,' the library won't be able to minimally block pages for adult patrons. To block sexually explicit sites from children, all the **content** categorized as 'sex' would be blocked--including the sex education and safe sex sites. Whether the filter is a URL filter or a **content** filter won't matter--or if it is 99% or 80% accurate--if the categories don't work for the library.

In fact, anyone installing...

...correcting the filter's mistakes--as you define mistakes--will cover the remaining 15%. The more important evaluation has to do with how well the

**content** categories can be used to define usable filter profiles for the library's users.

Alternatives to commercial filters

The decision to install a commercial Internet filter is tantamount to outsourcing traditional professional responsibilities, namely selecting and categorizing **content** to people with no such training.

Categories into which websites are assigned do not fall into any recognized authority such as Library of Congress subject...

...it refers to filtering by selecting websites for inclusion. Only those websites selected are available to patrons.

Most librarians acknowledge that a large amount of **material** available on the Web would not be chosen for their collection if that same **material** were available in book form. But the number of websites on the Internet and the speed with which websites are added and pages are moved...

...not a viable alternative. The only advantage to this approach is that librarians are once again in charge of collection development decisions. Only high-quality **material** would be part of the library's Internet collection.

But because of the amorphous and dynamic nature of the Internet, many wonderful new sites or...

...the library's Internet collection.

Even more than other types of filtering, the likelihood of patrons being denied access to enormous amounts of constitutionally protected **material** would be high using a restricted-access approach.

PICS-rated sites

PICS, the Platform for Internet **Content** Selection, has developed a specification that allows Web page creators to classify their own sites based on **content**. The Recreational Software Advisory Council (RSAC) is the most widely used rating system available. RSAC was

founded "to protect children from potentially harmful **content** while preserving free speech on the Internet," according to its website.

RSAC has been incorporated into ICRA, the Internet **Content** Rating Association. ICRA uses only a few **content** categories such as sexual **material**, violence, language, gambling, and chat. Within each broad category, levels exist.

For example, the sex category is further subdivided into passionate kissing, clothed sexual touching...

...also is easy to use and free for anyone using Internet Explorer and some other browsers. For example, Netscape has a similar program called Netwatch.

**Content** Advisor, a component of the Internet Explorer browser, uses the PICS system and allows the user to decide how restrictive the blocking will be. The most important feature of **Content** Advisor is that it also allows the user to decide what will happen when unrated sites are encountered.

The vast majority of sites are unrated because so few sites use any kind of PICS rating. If **Content** Advisor is set to allow all unrated sites, the filtering on that terminal will be minimal, but it will have a technology protection measure installed.

Customizing your own block list

One surefire way to accurately filter Internet **content** doesn't involve outsourcing the job of categorizing sites to the filter companies.

Rather than buying a filter and relying on how they've decided...

...Kansas Library System (NEKLS). Using Squidgard and a single block list

designed to meet CIPA requirements, every public library in Kansas can filter CIPA-mandated **content** for free.

Patrons can suggest pages they'd like added to the block list and a small group of librarians determine whether the site should...

...how much you pay for it or how many categories you choose to block, can prevent the determined, clever patron who wants to find sexual **content** on the Internet.

Filters can be effective at reducing the likelihood that patrons accidentally encounter inappropriate sites and can make finding inappropriate sites more difficult...

...s policies determine what filtering strategy to use. Is your policy to use a broad brush and err on the side of blocking more legitimate **content** while reducing the likelihood of patrons accessing offensive or inappropriate **material**? Or is your policy to selectively block some key targets and see if that does an adequate job for your community?

If your community or...

...prevent anyone from being able to access anything gruesome, violent, or sexually explicit?

\* Do we want to treat children differently? If so, what type of **content** do we want to prevent children from seeing? What about young adults? Is there another age group we need to filter differently?

\* Do we want...

...about how the various products differ.

Chapter 3

SELECTING A FILTER

Chapter 2 provides important background into filtering, specifically the filter marketplace and the important **content** categories that provide the primary mechanism for control with most commercial filters. Once you understand the basic workings of a commercial filter with their multiple categories of **content**, then you can make a decision about using one or not.

If you decide to use one, you need another level of understanding to ensure...

...or network appliances. These network-level products have the breadth of features necessary for managing the filters in a library setting and have more appropriate **content** categories. For this reason, this report focuses primarily on this class of filter, not client-based products. Situations exist, however, where installing a children's...

...protection measures to supplement the main filter.

Remember, CIPA does not mandate that the library filter every computer with the same filter or to block **content** for all patrons in the same way. So, even if a minimal approach to blocking is in place for adults (which allows for CIPA compliance), the library might still choose to block **content** beyond the CIPA mandate to satisfy community

demand. Such supplemental blocking can be done with a different filter from the one used to minimally block...

...packages PAC management tools with filtering using Surfcontrol as the underlying filter.

Many companies whose primary service is network management or network security provide Internet **content** filtering as part of a suite of services. For example, DynaComm i:filter is part of that company's i:series product line that includes...

...monitoring. Smoothwall's primary product began as an affordable firewall product but its product list now includes traffic management and VPN products along with its **content** filter, Corporate Guardian.

Security products vendors that use a third-party filter include LogiSense, which developed its EngageIP product line--including NetManager and CacheManager. LogiSense uses the Cerberian **content** filter as a plug-in.

Barbedwire Technologies states that it has taken a "modular approach to an appliance based network security infrastructure" including intrusion detection...

...wireless security, and application security. In addition, it provides a Web access control module, also based on Cerberian.

Even companies primarily focused on addressing Internet **content** filtering have introduced additional features into their products to address security issues associated with Internet access. For example, Websense not only provides a well-known **content** filtering product, but it also provides a bandwidth optimizer package and a client application manager designed to address spyware and malware (among other things) at the desktop. St. Bernard Software, maker of the iPrism **content** filtering network appliance, now sells an e-mail security product called ePrism.

Some filter companies that have been in business the longest also have a...

...are not clear, or more likely, because library filtering requirements are more demanding. These products have generally filled the school filter niche and seem fairly **content** occupying only that space.

Some of these products have improved to some extent, but the biggest advances in...The primary advantage of open-source products is that they

are infinitely customizable. None of the source code is hidden. Anything can be changed. Of **course** the library must have someone on staff who is familiar enough with Java, Perl, or PHP to take advantage of the customizability of open-source...

...is installed on the servers in the middle of the night, and everyone hopes all the kinks are worked out before the library opens. Of **course**, this approach is becoming more difficult as libraries increase their virtual reach and provide some level of services 24 hours a day, even if the...

...a way to test the categorization of a URL online but if such a tool is available, it is an excellent way to better understand **content** categories and the likelihood that unacceptable problems exist with the product's categorizing algorithms.

- Ability to turn off keyword blocking
- Keyword blocking was a technique...

...and cannot be used in a URL or search box, or when websites containing the forbidden word are blocked. Such a simplistic technique for blocking

**content** has no place in a library setting.

Although keyword blocking is more sophisticated than it was in the early years, it is still available and...

...reduce the incidence of missed sites (but it still causes major overblocking problems).

When keyword blocking is offered as the only mechanism available for blocking **content** and cannot be turned off, the filter is not appropriate for library use (or possibly anywhere). When keyword blocking is optional, turn it off.

Although some filters rely on some type of **content** analysis, which to some degree relies on evaluating keywords and phrases, this approach is generally not referred to as keyword blocking and should not be confused with it.

- Multiple filter profiles

If the library is implementing filtering to do more than block all

CIPA-mandated **content**, it should select a product that allows for multiple and flexible filter profiles. With CIPA, all patron and staff PCs must be filtered, but a...

...corrections to the filter. Don't filter staff computers to the same extent that patron computers are filtered when using a commercial filter's hidden **content** categories.

- If the library is using a single block list of sites selected for

blocking, then multiple profiles are not necessary. If all PCs, including

...

...policy

- \* How filters are used to enforce library policies
- \* How to request review of a blocked page
- \* Where to find a computer that provides unfiltered **access**

Wording, such as the **following**, is helpful to patrons:

Sorry!

The **content** of this URL is currently blocked.

<http://www.teenc.com/> is rated as: nudity, pornography

If you require further assistance, please contact any library staff

...

...new set of problems including:

- \* Turning the filter back on
- \* Determining how long the filter remains disabled
- \* Informal monitoring of adults to ensure they are **following**

the library's IUP and not **viewing** illegal **content** such as child pornography

\* Lack of clarity about the library's responsibility to monitor the

unfiltered computer to ensure a young person doesn't decide...

...out the patron from the current filtered profile and log them back in as

a less-filtered patron--thus removing the blocks to constitutionally protected **content** but retaining other controls that prevent certain activities such as Internet chat or games.

Changing a patron's filter profile is one way to ensure that other controls handled by the filter remain in place while **content** filtering for CIPA is turned off. This approach, though, imposes a substantial burden on floor staff who have to be available to both log out

...

...have been categorized by the filter company in a way that does not conform to the library's expectation or understanding of the Web page **content** and the filter's **content** categories. Although most products allow the administrator to add sites to an 'always allow' or an 'always block' list (Figure 5), this capability does not provide the ability to add new categories of **content** that can be used to build filter profiles. This feature is nice when a high level of granularity in the **content** categories is required or when the filter's simplistic categories are inadequate.

To populate any new category created by the library, the sites that belong...

...located and entered into the new list--a fairly labor-intensive process.

Because filter companies do not generally reveal the URLs that fall within each **content** category, librarians cannot just move a URL from one category to another. Any site that the library wishes to override or place in its newly...

...by monitoring the filter's log files to focus on the URLs being accessed by patrons.

Ability to block images only (not text) within a **content** category

For anyone comfortable with a strict interpretation of CIPA (blocking images not text), an important feature to watch for is the ability to block only images within a selected **content** category. Although many products allow the library to block by file type, these types of blocks (as with protocol style blocks) tend to apply to all filtering rather than being associated with specific categories of **content**.

More recently, products have sprung up that allow the administrator to select a **content** category (pornography, for example) and to block, within that category, certain file types such as .jpg, .gif, and other image files when they are loaded...

...filters, especially for library use. Some studies of Internet filters focus on filter accuracy or the likelihood that they block constitutionally protected information in target **content** areas (health for example). But many of these studies accepted the default settings instead of configuring the filter to work better in a library setting...

...features of several products and exclude the products that are not a fit because the categories or features aren't sufficient. For example, perhaps the **content** categories aren't defined in a way that will help enforce the Internet use policy or the unblocking features are insufficient.

Next you would design...

...accuracy, effectiveness, intellectual freedom, civil liberties, and overall performance:

\* Online Policy Group and the Electronic Freedom Foundation, Internet Blocking in Public Schools: A Study on **Internet** Access in **Educational** Institutions, (San Francisco, CA: **Online** Policy Group, June 2003).

\* Kaiser Family Foundation, See No Evil: How Internet Filters Affect the Search for Online Health Information. (Kaiser Family Foundation, December 2002...

...al. (Cambridge, MA: Ben Edelman, 2002).

\* Heins, Marjorie, and Christina Cho. Internet Filters: A Public Policy Report, (New York: Free Expression Policy Project, fall 2001).

\* **Updated Web Content** Software Filtering Comparison study, conducted by eTesting Labs on behalf of the Department of Justice.  
October 2001.

\* Ayre, Lori. Internet Filtering Options Analysis: An Interim...

...might be more useful to libraries.

\* GetNetWise is a public service organization composed of Internet industry corporations and public interest organizations dedicated to "ensuring that **Internet** users have safe, constructive, and **educational** or entertaining **online** experiences."

\* InternetFilterReview.com provides a more balanced approach to filtering in the home including reviews of several products.

Developing an RFP

The best way to...

...would like to consider for purchase. Rather than issuing an RFI (request for information), which essentially invites the filter company to send you their promotional **material** or a salesperson, an RFP requires the library to do some upfront work to define its needs and the network environment.

Any vendor responding to...

...requirements from the highly desired requirements and then weight each one in the analysis phase. For example, perhaps the library has decided that having the **content** category causing the block on the default block page is not as important as having the blocked URI. displayed on the block page.

When evaluating...

...be easily e-mailed so requesting a paper copy of the RFP response "with attachments" allows the vendor a more manageable way to include supplemental **material** without overwhelming anyone's inbox.

RFP and open source

Going through the process of developing an RFP is an important way to clarify the library...

...a consultation is worthwhile if the resulting decision saves the libraries thousands of dollars in licensing costs each year.

Chapter 4

BEST PRACTICES

Filtering Internet **content** in a library environment creates certain obligations. It's a more demanding process than parents face when filtering their children's computers or for employers...

...services.

I. Books and other library resources should be provided for the

interest, information, and enlightenment of all people of the community the library serves. **Materials** should not be excluded because of the origin, background, or views of those contributing to their creation.

II. Libraries should provide **materials** and information presenting all points of view on current and historical issues.

**Materials** should not be proscribed or removed because of partisan or doctrinal disapproval.

III. Libraries should challenge censorship in the fulfillment of their responsibility to provide...

...providing public library service.

Protect patron privacy--do not use monitor feature  
Filter profiles define the action that will be taken for each category of **content** for a particular user or group of users. The actions that can be chosen may include block, warn, monitor, or allow. In a library, few...

...when the category is selected for blocking. Reading the category name, however, does not necessarily give the administrator a clear idea of what type of **content** is contained in the category. Reading the descriptions of the category is crucial.

Filter companies concoct their own schemes for categorizing websites.  
No authority exists...

...to block the sex category to accomplish this goal. In contrast, choosing the sex category from N2H2's filter categories would result in blocking more **content** than was intended.

Each filter uses a unique system for naming categories, and the filters sometimes use words in unexpected ways. The filter administrator must...

...to learn what the filter company really means by its headings.

Do not rely on any kind of shared definition of the words in the **content** category heading. Consider one filter's definition of its sexuality category as compared with the definition from the American Heritage Dictionary.

American Heritage Dictionary of...

...that provide information, images or implications of bondage, sadism, masochism, fetish, beating, body piercing, or self-mutilation.

Even reading the headings and descriptions of the **content** category and examining the sample sites that are sometimes provided doesn't

tell the administrator exactly what websites are included in any given category, but...

...does provide an important start.

Use filter to reinforce policies associated with activities

Filters can be used to limit activities as well as access to **content**. If your library has policies about how different computers are used, the filter profiles can often be designed to reinforce those policies.

Using the example of a filter with six **content** categories (adult, pornography, gambling, hate, games, weapons), the filter profiles

might look like this:

Sample library filter profiles (Extensively blocking **content**)

Staff	Adult	Youth	Children
Adult--allow	Adult--allow	Adult--block	Adult--block
Pornography-- block	Pornography-- block	Pornography-- block	Pornography-- block
Gambling-- allow...	Gambling--	Gambling--	Gambling--

...The result is that a person logging into a computer as 'youth' or simply

selecting one of the youth terminals will have certain categories of **content** set to 'block' as defined by the library.

For example, using a product such as N2H2's Bess (30), you might choose to block the...

...implement filtering as instructed by the board or in a way that responds

to the community's needs.

Minimally block to comply with CIPA

Obscene **material** and depictions of child pornography are already illegal, and libraries have no reason to allow this type of **content** to any patron or staff. Theoretically, any library blocking only this type of **content** would never have to worry about unblocking blocked sites or turning off filters.

No filter, however, actually limits its categories to obscene **material** and child pornography because the current definition of obscenity doesn't work on the Internet. Two prongs of the three-part Miller

test (31) that establishes whether something is obscene relies on community

standards. When viewing **content** over the Internet, saying what constitutes the community is difficult. Such a finding is practically impossible to make for Internet **content**.

Also, the Miller test states that the **content** as a whole must appeal to the prurient interests. But what constitutes the whole when talking about Internet **content**? Is it the Web page, the website, the domain? Filter companies are less capable of defining obscene Internet **content** than the local library staff person is because at least the staff person can establish the community he or she is servicing. For these

reasons, no filter exists that truly only blocks **content** mandated by CIPA.

Most filters have a pornography category or some other category for sexually explicit **material** but no specific child pornography or obscene category. Although filters may claim to be CIPA compliant, they have no CIPA category.

The category of sexually explicit or pornography categories may contain obscene **material** or child pornography, but they also probably contain soft-core porn sites and nudity.

Commercial products tend to define some type of broad pornography category, which will be the one category libraries will choose if the library's goal is to minimally block **content** while using an off-the-shelf product.

For example, using CyberPatrol, a well-known filter often used in schools or by parents has no suitable category for blocking access to only

illegal sexually explicit **content** such as obscenity and child pornography. The best you could do is select its adult/sexually explicit

category described as follows:

Adult/sexually explicit

\* Adult...

...goes well beyond the confines of CIPA.

Using a product such as CyberPatrol for complying with CIPA puts you

in the position of significantly overblocking **content** for adult patrons. One way around this problem is to install the filter on adult computers but not select any categories for blocking.

Would a...

...instead of the overly restrictive categories.

Using a product designed for business use might enable the library to

select categories closer to the CIPA-required **content**. For example, using Websense, the library could set up one filtering profile restricting access to only its sex category:

"Sex--Sites that depict or graphically describe sexual acts or activity, including exhibitionism; also sites offering direct Links to such sites."

In the case of Websense, it distinguishes the previous **content** from other types of adult **material** that could still be permitted, such as:

\* Adult **content**--Sites that display full or partial nudity in a sexual context, but not sexual activity; erotica; sexual paraphernalia; sex-oriented businesses as clubs, nightclubs, escort...

...children. Using directories such as KidsClick! and search engines such

as Kid's Tools for Searching the Net can help younger children find age-appropriate **content** on the Internet. Don't rely on the filter to do all the work of helping children browse the Internet safely. Think of

the filter falling into that product's adult category. Her intent was not to block gay-themed **content**.

This situation amounted to a significant overblock since many key library resources were available through the Gaylord subscription service.

Check absolutely everything patrons access via...

...Publish the library's filtering policy

Share the Internet use policy and the corresponding filtering strategy with the community. Let people know which categories of **content** have been chosen for blocking for each group of users and why. Give the public an opportunity to discuss the filtering policy and discuss the...

...will naturally occur.

Most filters provide many predefined reports that the administrator can run to help the library track how well the URLs match the **content** categories, how often patrons encounter blocked pages, which pages have been overridden, the most visited sites, websites using the most bandwidth, and more.

At the...

...degree to which the library can tolerate overblocks dictates what percentage of sites to review.

For example, a library that only blocks one category of **content** to minimally comply with CIPA might be satisfied by spot-checking 1% to 2% of the sites blocked each day. Depending on the number of...

...reporting tools or log files, this job could be large or small. Regardless of the job size, perform this minimal level of monitoring.

The more **content** categories being blocked, the more corrections to overblocking there need to be. According to the Kaiser Family Foundation study (33), the overblocking rate for filters studied was around 2% when the filters were minimally configured to block CIPA **content**.

This rate, however, increased to as much as 35% with some filters when the goal expanded to restrict access to educational sites only. In other...

...the library's filter.

A rule of thumb is to increase the percentage of blocked sites reviewed for accuracy by 2% for each category of **content** selected for blocking.

Solicit patron feedback

One of the best ways to learn about the effectiveness of a filter is to allow for anonymous feedback...

...who can administer the filter, such as an assistant filter administrator.

A larger group of library staff should make decisions associated with filter profiles and **content** categories. Don't leave these decisions

with the filter administrator or assistant administrator. This group should carefully add sites to the 'always allow' or 'always...

...site will be blocked within each filter profile.

Similarly, library management or a filter monitoring committee, not

just systems staff, should evaluate creating a new **content** category or moving a Web page from one category to another.

Use a filter monitor committee

Just as selecting the filter and developing the Internet...

...the right to know what the library is filtering.

Some members of the community will take the position that the library is censoring constitutionally protected **material** that they have a right to access. And they are correct.

For this reason, libraries should restrict **content** as minimally as possible to meet the library's and community's goals. To the extent that patrons understand and appreciate what the library is...

...keep the community's respect.

Provide key information on the block page

Filters function in many ways but the end result is essentially the

same. **Content** that would normally display on a user's computer screen does not. The users aren't necessarily aware of the filter working behind the scenes...

...Immediately correcting the overblock is better than waiting until the end of the week when blocks are regularly checked for accuracy.

Depending on the page **content**, the library IUP may dictate that access be permitted only if the patron's age can be verified, in which case anonymous requests to override...

...fine-tuned, the fewer times patrons will request unblocks. Numerous requests to work unfiltered should serve as a message that the library is blocking more **content** than is appropriate for the community's needs. In this case, consider modifying the filter profiles for some public-access terminals so patrons who wish to have less Internet **content** blocked turn off the filter.

Take advantage of the flexibility inherent in many of the filters that offer many filtering levels for different types of...

...Every piece of software and hardware requires maintenance in the form of software updates, hardware repairs, and configuration changes. In addition, some filters require daily **updates** to be downloaded to the **content** database.

Make one person responsible for the filter's ongoing maintenance.

This job is technical and should be performed by the systems staff,  
just as  
...

...being made as more advanced disabling and overriding features are introduced, and the ability to block images (visual depictions) without blocking text in a specific **content** category becomes available. Eventually, a filter will come to market that is designed specifically for library use.

The release of filter modules by the integrated...

...filter present an excellent example of how this control is being taken today. Rather than continuing to rely on nonprofessionals to make decisions about categorizing **content**, librarians will eventually team up and create their own library block lists using filters their own people design.

open-source filters combined with cooperative URL...  
...resources policy

It is the policy of Spokane County Library District to make Internet resources available to its customers, together with its collection of library **materials** and access to electronic databases, as a means of providing information in support of its mission.

The District offers **materials** and information in a variety of formats and media, with selection guided by its Collection Development Policy. Its goal in providing Internet resources is to...

...available or as up-to-date. In addition, it extends access to this information resource to all citizens.

As the District limits its selection of **materials** based on Collection Development Policy criteria and fiscal constraints, the District may limit customer access to Internet functions which it determines to be inconsistent with...

...goals, including youth-oriented resources with age-appropriate reading levels.

2. Library staff will be available to provide customer assistance.

3. As with other library **materials**, services and programs, the District will not limit minors' access to Web **content** beyond that required by CIPA and affirms the right and responsibility of parents and guardians to determine and monitor their children's use of Internet...  
...rights and responsibilities to limit their children's access to inappropriate matter on the Internet and the Web and restrict their children's access to **materials** harmful to minors by:

a. Providing at least one computer workstation, located in or near the children's area in each branch, with Internet access...

...managed in a manner consistent with the District's Customer Conduct

Policy.

Customer responsibilities

1. Individual library users are responsible for determining the suitability of **content** for their purposes. The District does not control or monitor information that may be accessible from Internet sources. Information may be reliable and current, or...

...by their children;

d. Protect against unauthorized disclosure, use, and dissemination of

personal identification information regarding minors; and

e. Restrict their children's access to **materials** harmful to minors.

4. Customers are requested to exercise appropriate discretion in viewing **materials**. The District will not guarantee privacy for individuals using library public access computers to search the Internet

and computer screens may be visible to people...

...may enhance resources already available in the Library. However, the Library cannot control the information available over the Internet and is

not responsible for its **content**. Some sources provide information that is inaccurate, incomplete or dated; some sources may be offensive, disturbing, and/or illegal.

To assist our patrons in their...

...the ever-changing nature of the Internet, cannot guarantee that these

links will remain valid. Similarly, the Library cannot be responsible for

changes in the **content** of the sources to which it links, or the **content** of sources ...in the use of the World Wide Web.

Access by minors

The Library upholds the right of each individual to have access to

constitutionally protected **material**. The Library also affirms the right and responsibility of parents and legal guardians to determine and

monitor their own children's use of library **materials** and resources.

To assist parents in their responsibility for their children's use of the

Internet, the Library provides the following services:

\* Specially designed Web...

...the Seattle Public Library system. This filtering software will block

many specific sites that may be offensive to some users, but may not block

all **materials** that may be offensive to all users. Parents should inform their children of **materials** they do not want them to use, and may wish to supervise their children's Internet sessions.

Computers with commercial filtering software for public use...

...the Seattle Public Library system. This filtering software will block

many specific sites that may be offensive to some users, but may not block

all **materials** that may be offensive to all users. Parents should inform their children of **materials** they do not want them to use, and may wish to supervise their children's Internet sessions.

Rules governing use To make the Internet available...

...the Internet. A separate document establishing procedures in dealing with concerns and policy violations has been created to act as companion to this document.

Internet **Content** Standards:

Internet users shall not access **material** that is obscene or is considered child pornography. "obscene" means **materials** meeting the standard established by the U.S. Supreme Court in Miller vs.

California,

413 US. 15 (1973) whereby an affirmative answer is required to...

...that the work, taken as a whole, appeals to the prurient interest;

B. Whether the work depicts or describes, in a patently offensive way, sexual **content** specifically defined by the applicable state law; and

C. Whether the work, taken as a whole, lacks serious literary, artistic, political, or scientific value.

Internet Use Guidelines:

1. Internet users shall not access **material** that is obscene, pornographic, child pornography, "harmful to minors", or otherwise inappropriate for **educational** uses.

2. **Internet** users shall not use any resources that engage in "hacking" or attempt to otherwise compromise system security or filtering.

3. Use of chat, instant messenger...

...by Internet users is expressly forbidden without staff intervention.

4. Use of E-mail and bulletin board services is allowed within the following guidelines: the **material** being sent meets "contemporary community standards"; does not contain sexually explicit information; would not contain information that would be considered "harmful to minors"; would not...

...information on the Internet, the unstructured and unregulated nature of

the Internet, and the unreliable state of filtering, the Ames Public Library cannot control the **content** of resources available on the Internet.

Library staff will apply the selection criteria outlined in the library's "**Materials** Selection" policy to provide access to a broad range of World Wide Web resources through the library's homepage. The Ames

Public Library homepage is designed to offer easy and convenient access to

valuable local, national, and international sources of information.

Access

The Library does not select the **material** on the Internet and has no means or statutory authority to assure that only constitutionally

protected **material** is available on the Internet. That authority to determine what is illegal (obscene) **content** rests with the Story County Attorney or the Iowa Attorney General. (Sec. 728.6, Code of Iowa).

As stated in the American Library Association's...

...policy could result in revocation of library privileges.

Responsibilities of users

The Internet is a global entity with a highly diverse user population and information **content**. Though the Internet provides users with a wide array of excellent information, it also contains information that may be inaccurate, outdated, or personally offensive. Library...

...Internet resources carries with it a responsibility to evaluate the quality of the information accessed.

The availability of information does not constitute endorsement of the **content** by the Ames Public Library.

Access, use, or dissemination of information via the Internet in the library is the responsibility of the user. In the...

...and appropriateness of information found.

Choosing and evaluating sources

The Internet is a series of communication linkages leading to a highly diverse array of information **content**. Library patrons use it at their own risk. In choosing sources to link to from its home pages, the

Library follows its **materials** selection guidelines. Beyond this, the Library is not responsible for the **content** of the Internet, changes in **content** of the sources to which the Library home pages link, or for the **content** of sources accessed through secondary links. In an effort to assist its users, the Library has created websites for the general population, for teens and...

...library resources are appropriate for their own children. Parents or legal guardians should guide their children in use of the Internet and inform them about **materials** they should not use. While the Library affirms and acknowledges the rights and responsibilities of parents and guardians to monitor and determine their children's access to Library **materials** and resources, including those available through the Internet, the Library has taken certain measures designed to assist in the safe and effective use of these resources by all minors.

a. To address the issue of access by minors to inappropriate **material** on the Internet, including **material** that is harmful to minors, the Library:

i. Develops and maintains special websites for children and teens;

ii. Develops and provides **training** programs on safe and effective **Internet** use;

iii. Encourages staff to guide minors away from **materials** that may be inappropriate; and,

iv. Distributes a publication entitled "A Safety Net for the Internet: A Parent's Guide."

b. To address the issue...

...Card at the Circulation Desk.

- \* This card will only allow you to use the PC stations;
- \* you will not be able to check out library **materials**.
- \* These cards will be free of charge during this evaluation

period.

\* Beginning on September 3, 2002, there will be a \$2.00 annual card fee...

...org

Network appliances  
Corporate Guardian, [www.smoothwall.net/products/corporateguardian](http://www.smoothwall.net/products/corporateguardian)  
CyberSetting, [www.itcompany.com/cyber.htm](http://www.itcompany.com/cyber.htm)  
FastTracker, [www.fastdatatech.com/fasttracker/index.shtml](http://www.fastdatatech.com/fasttracker/index.shtml)  
iCM Intelligent **Content** Manager,  
[www.filterlogix.com/ICMLINUX.htm](http://www.filterlogix.com/ICMLINUX.htm)  
iPrism, [www.stbernard.com/products/iprism/products...](http://www.stbernard.com/products/iprism/products...)

...12techpart.htm

Products using Cerberian:  
SonicWall, [www.sonicwall.com](http://www.sonicwall.com)  
EngageIP **Content** Filter, [www.logisense.com/content\\_...](http://www.logisense.com/content_...)

...filtering.html SurfSentinal, [www.gta.com/products/contFilter](http://www.gta.com/products/contFilter)

SnapGear URL **Content** Filtering, [www.snapgear.com/urlfiltering.html](http://www.snapgear.com/urlfiltering.html)  
BarbedWire Technologies, [www.barbedwiretech.com/products/cf/cf.htm](http://www.barbedwiretech.com/products/cf/cf.htm)  
ContentQA, [www.imimic.com/index29d4.html](http://www.imimic.com/index29d4.html)  
NetWolves Web Filter, [www...](http://www...)

...filter.shtml

Blue Coat Proxy Servers, [www.bluecoat.com/solutions/content\\_...](http://www.bluecoat.com/solutions/content_...)

...

...libraries their choice of filter to use with their print and time management modules including Websense, X-Stop (8e6Technologies), Bess (N2H2), or SurfWatch (CyberPatrol).

Artificial **Content** Recognition Engine

Artificial **content**

recognition (ACR) technology examines each requested HTML page, and then categorizes it. The following steps describe the filtering process of ACR:

1. A Web page...

...discount program known as the E-rate. These restrictions take the form of requirements for Internet safety policies and technology that blocks or filters certain **material** from being accessed through the Internet. The law was permanently enjoined by a three-judge panel on May 30, 2002.

The Supreme Court overturned the decision June 23, 2003. [www.ala.org/Content/NavigationMenu/Our...](http://www.ala.org/Content/NavigationMenu/Our...)

[...us/dltcl/pld/cipafaq.html](http://...us/dltcl/pld/cipafaq.html) (Jan. 17, 2004).

(3) <http://peacefire.org/censorware/CYBERSitter>.

(4) CyberSitter Examined.

[www.peacefire.org/censorware/CYBERSitter/#why](http://www.peacefire.org/censorware/CYBERSitter/#why).

(5) WebSense **Content** Categories.

<http://infopeople.org/howto/filtering/categories/websense.html>.

(6) Zittrain, Jonathan, and Edelman, Benjamin. Documentation of Internet Filtering in Saudi Arabia. <http://cyber.law...>

...Derek Hansen's article "CIPA: Which Filtering Software To Use" available

on WebJunction.org at <http://webjunction.org/do/DisplayContent?id=2102>.

(9) Kanguard: Internet **Content** Filter for Kansas Libraries.

[http://skyways.lib.ks.us/KSL/libtech...Filtered Internet Access and Makes a](http://skyways.lib.ks.us/KSL/libtech...Filtered%20Internet%20Access%20and%20Makes%20a)

Believer out of One Skeptic. American Libraries, February 2003, pp 39-42

(Jan. 10, 2004).

(17) [www.ala.org/Content/NavigationMenu/Our...](http://www.ala.org/Content/NavigationMenu/Our...)

[...Privacy/CIPA1/compare.xls](http://...Privacy/CIPA1/compare.xls) (Jan. 10, 2004).

(18) [www.ala.org/Content/NavigationMenu/Our...](http://www.ala.org/Content/NavigationMenu/Our...)

[...adminguide/Chapter02.html#913765](http://...adminguide/Chapter02.html#913765) (Jan. 20, 2004).

(22) Susman, Thomas M. Ropes & Gray LLP. December 2003.

[www.ala.org/Content/NavigationMenu/Our...](http://www.ala.org/Content/NavigationMenu/Our...)

[...Filters.pdf](http://...Filters.pdf) (Jan. 21, 2004).

(26) From the ALA Sample RFI Questions. [www.ala.org/Content/NavigationMenu/Our...](http://www.ala.org/Content/NavigationMenu/Our...)

[...Privacy/CIPA1/RFI.pdf](http://...Privacy/CIPA1/RFI.pdf) (Jan. 10, 2004).

(27) American Library Association Bill of Rights. [www.ala.org/Content/NavigationMenu/Our...](http://www.ala.org/Content/NavigationMenu/Our...)

...children

Smartfilter "Sex" (28)

This category contains URLs that reference, discuss, or show pornography, including pictures, videos, or text of sex acts, or sexually oriented **material**. This **content** includes soft- and hard-core pornography, sado-masochism, bestiality, and so on. Some examples are:

\* PORN USA

\* Hustler

Note: In the broader context of cultural...

...are considered unproductive.

N2H2 "Sex" (29)

Sites that contain descriptions or depictions of sexual acts, specifically those without the intent to arouse (sites that contain **material** intended to arouse fall under the pornography category).

Sexual merchandise and fetish sites fall under the sex category.

Examples:

**20040301**

7/K/34 (Item 3 from file: 47)

DIALOG(R)File 47: Gale Group Magazine DB(TM)

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...are providing an increasing number of resources that users can access from remote sites. Academic libraries, in particular, are becoming partners in their parent institutions' **distance learning** programs. As a result, library staff now work with remote users (both students and faculty) with their own unique characteristics, needs, and expectations. To promote...

...who may be a few buildings away from the library on campus encounters a situation different from the student or faculty member participating in a **distance learning** curriculum involving a **distance** of hundreds or thousands of miles. Likewise, the user who has never before used electronic information resources brings a different set of needs and expectations...

...to be highly motivated, possess significant experience with library research and familiarity with electronic resources, and demonstrate relatively high success in using information technology. Like **distance education** students, they have less time for study. Consequently, they need **education** in more intense doses. **Distance education** students are also highly motivated and exhibit ambition due, in part, to their typically older age and a sense of maturity that is often associated with having a family or a well-established career. While some **distance learning** students may already be familiar with the library, many possess limited experience with library research and are unfamiliar with electronic resources. Likewise, their technology backgrounds...

...users tend to attach greater importance to reliability and responsiveness. Library users hold expectations for concrete indicators such as the rapid delivery of interlibrary loan **materials** or the consistently good working order of online equipment. The latter assumes even greater importance for remote users. A 1994 study conducted by Evans Library...can or cannot provide and what the costs, both monetary and other, will be to provide the desired services. This element is especially critical in **distance learning** environments where remote users

may possess less loyalty to the "home" institution and may be willing to shop around for the needed resources provided in...needed to become instructors in system interaction (Rosenquist-Buhler, 1996). The staff must

be able to engage in effective and extensive user communication and, of **course**, function as troubleshooters for hardware and software.

Lusher (1996) states that campus remote users comprise a unique category all their own. The challenge for library...

...sections deal with remote users or customers in general, the remainder

of the article addresses a subset of that population--i.e., users in a **distance learning** situation.

#### THE **DISTANCE LEARNING** CONTEXT

Slade and Kascus (1996) defined **distance education** as the independent mode of study characterized by the physical separateness of learners and teachers and the use of print, mechanical, or electronic devices to convey the **course content** (p. xvi). For well over a hundred years, correspondence **courses** have existed in the United States, relying on communication through the mail between learners and distant instructors. By the late 1960s, distance learners had access...

...programs, telephone tutoring and conferences, and, more recently, telefacsimile transmissions. Teaching packets for these telecourses included study guides, audiotapes, videotapes, and CD-ROMs. Both correspondence **courses** and telecourses are still being offered, along with **courses** providing even ,greater degrees of interactivity, such as those using e-mail, **audio** conferencing, and videoconferencing.

With the increase in personal computers in the home, Internet **courses** are growing in popularity. In this asynchronous form of **distance education**, students determine their own schedule and location for studying. Such **courses** can include instructor-directed discussions, exercises, or projects using electronic mailing list managers, Usenet newsgroups, or HyperNews (a hybrid of the mailing list manager/newsgroup...

...thereby increasing enrollments. Moreover, lifelong learning is increasing in popularity among adults with work and family responsibilities.

It is difficult to estimate enrollment figures for **distance education**. However, one can gauge the extent of **distance education** in the United States by looking at the numbers of institutions offering such **courses** and programs as listed in the Web catalog of the Globewide Network Academy. This clearinghouse of **distance education** information shows listings for more than 10,000 **courses** and degree programs offered by nearly 400 institutions worldwide as of July 1997. Approximately 300 of these are U.S.

institutions. According to Noam (1997), electronic **distance education** is provided by some 150 schools in the United States using seventy-five satellite channels (p. 6).

#### STUDENTS

Distance learners range in age from high...

...However, listserv discussions of the demographics of distance learners in urban/suburban and rural settings show anecdotal support of the demographics noted on Peterson's **Distance Learning** Web Page--most students who enroll in **distance education courses** are over twenty-five years old, are employed, and have previous college experience. Over half are female. As a group, distance learners are highly motivated. Their **course** completion rate exceeds that of students enrolled in traditional on-campus **courses**.

Listsers discussions also note that a higher percentage of white women participate in distance programs than are enrolled in the traditional on-campus **courses** at the same institutions. Distance learners also tend to be part-time students. Technical **distance education** classes show higher enrollments of men while all other **distance education** classes show higher enrollments of women without regard to location (urban, suburban, or rural).

Living at long distances from the sponsoring institution might be the primary reason for taking **distance education** classes in rural settings. However, listserv comments about the reasons for taking **distance education** classes in urban/suburban settings ranged from "convenience" (many employers, such as hospitals, bring **distance education courses** into the workplace) to "it's the only option they have" (specialized **courses** might not be offered any other way). Other reasons include confinement to the remote site for various reasons, such as lack of transportation, disability (their ...

...most often, job or family obligations. Comments noted that some students simply chose not to drive to campus for various reasons, but they will take **courses** on campus (often simultaneously with a **distance education course**) if the **course** is not offered through **distance education**.

#### **DISTANCE LEARNING AND LIBRARY SERVICES**

What is the relationship between **distance learning** and academic libraries? A 1996 survey of the 119 members of the Association of Research Libraries shows the extent to which major U.S. academic libraries are providing services for **distance education courses**. Of the seventy-four respondents, forty-six (62 percent) indicated that their institution is participating in **distance education** programs, primarily through interactive video technology (forty of the forty-six). All but three of the libraries provide services to support these **courses**. Half provide instructional support assistance to the faculty for the development of **distance education courses** (Snyder, Logue, & Preece, 1996).

#### **COURSE DESIGN**

The literature reveals that any early expectations of a smooth transition to teaching in the interactive television context evaporate quickly in the heat of exposure to this medium. Alley (1996), who taught a first-year physics class using **distance education** for the

first time in 1995, was bewildered by his first encounter with the instructional technologies available to him: "I was soon to discover that the class could not be taught within conventional boundaries of thinking and **course** design" (p. 49). He made significant changes to his **course** that led to an overhaul of his approach to teaching.

Alley expected students in the **revised course** to go beyond the general facts and principles of the discipline. Students experienced how professional scientists use computers and Internet access on a daily basis...

...Internet access, multimedia instructional software, interactive video technology, networked access to information resources--all these have dramatically changed the nature and teaching methods involved in **distance education**. Teaching faculty need to reeducate themselves to make use of these powerful technological tools in their classrooms and to change their teaching styles and methods...

...only does the redesign process drain faculty energy and time, but it can also mean a loss of control in the amount and scope of **material** to be covered. One science professor believes that interactive television (ITV) technology creates a lag time or "coefficient of friction," allowing faculty to achieve only...

...percent of what they could in a traditional classroom.

A nursing professor finds that the dynamics of classroom participation require constant attention. She reworks the **course** continually, experimenting with different spatial arrangements to improve group interaction. Some classroom arrangements prevent easy discussion among more than six students. Other interactive television systems...

...systems available will never match the ultimate fantasy of tapping the world's wisdom effortlessly. Brunner expresses concern that the masculine (and business) vision of **distance learning** as a means of more efficient delivery of education will supersede the vision of bringing different kinds of people together and collaborating to make up...

...that have never yet been adequately addressed--issues such as information literacy skills. It is all too easy for instructors to assume that the additional **materials** they bring into the **distance learning** classroom, such as slides and videotapes, adequately replace individual research in terms of stimulating interest.

#### DISTANCE LEARNERS AND LIBRARY SERVICES

Decades ago, when many institutions...

...easy-to-follow instructions. As the off-campus education programs became more sophisticated, the institutions sent packets of information that

included lectures, photocopies of reading **materials**, and assignments. In order to complete many of these assignments, students needed to seek help at a nearby library. Those institutions that belonged to a...

...institution library staff had made no prior arrangements with the library that was actually expected to provide the services.

Academic librarians tried to support these **distance education** students by compiling bibliographies or research guides and by providing photocopies of required readings and interlibrary loan services. In many cases, this was a hit...

...which addresses the information needs of its extended campus programs" in the revised and updated Guidelines for Extended Campus Library Services.

According to Shaughnessy (1995), **distance learning** programs are "**distance** and time independent, customer focused, and more relevant to the needs of the work place ..." (p.1). Academic librarians, already heavily challenged by technological advances... determining services offered to all users. In other words, librarians need to understand the unique needs of distance learners when providing services to them.

Higher **education** faculty and students approach **distance learning** with the expectation that the experience will be the same as experiences they have had in traditional educational settings. Both faculty and students also expect that their research and information needs will be the same as for **courses** and programs taught in traditional settings. Faculty expectations change rapidly with experience in **distance learning**. In addition, these expectations serve to set, readjust, or reinforce student expectations. Thus, library staff must understand the opportunities that **distance learning** programs present in order to anticipate and help shape realistic remote user expectations. This requires open and proactive communication, flexible and creative use of resources...

...considered their friends and colleagues, not a library, as their primary information sources. This situation should provide the home library with an outstanding opportunity to **learn** about their students' needs.

#### **DISTANCE LEARNING AT DE PAUL UNIVERSITY**

##### The Curriculum

DePaul University is located on five campuses in the greater Chicago area. As part of an initiative by the...

...DePaul installed its first interactive television classrooms during the 1993-94 academic year at three campuses. The ITV technology is a fully interactive video and **audio** system in which students at the

"receiving" site view television monitors showing an instructor at a remote location on one screen and their own classroom...

...slides, and presentation graphics software. The instructor and a technical staff person have full control of the direction and focus of the television video and **audio** production. As a result, they can choose to put students on camera to speak with the instructor or other students.

DePaul's most common use...

...classes (primarily in computer science) between its campuses in Chicago's Loop and in Lincoln Park on the north side of the city. Far fewer

**courses** link a DePaul campus with remote sites such as community colleges, high schools, and hospitals in the outlying suburbs. The university's goal is to expand the number of complete academic or professional programs rather than individual **course** offerings in the **distance learning** environment. However, at present, most students who take a **course** at a distant site have either taken **courses** previously on a DePaul campus or are enrolled simultaneously in **courses** on campus and at remote sites.

Library Services and Resources

DePaul's Lincoln Park campus library is home to collections in the liberal arts and...

...computer science. DePaul is part of the ILLINET consortium of over forty academic libraries in Illinois with cooperative borrowing arrangements for students and a common **online** catalog. In addition, most **distance learning** students are employed full time and have access to special libraries provided by their employers.

DePaul distributes nearly seventy electronic databases and a growing collection...

...connection, and still others from remote computers using only a modem and telecommunications software. This confusing array of resources changes and expands continually to improve **access** and system reliability.

Study Design

The authors focused on **courses between** a DePaul campus and a remote site because the challenge of delivering library services to students is greater when they attend a class at a...

...women who have been out of formal education for many years. Both programs have successfully integrated education in library research and computer skills into appropriate **courses**.

Ten faculty members (three men and seven women) have taught **courses** between a DePaul campus and a remote site. The disproportionate number of female faculty is due to the predominance of

women in nursing. Two of the faculty are part-time adjunct professors, and the other eight are full-time faculty. No faculty member has taught more than four **courses** in the four academic years since the interactive television classrooms were installed.

The authors surveyed twenty-four graduate nursing students at non-DePaul sites over the **course** of one year. For the first two quarters, the authors used an open-ended questionnaire. In the third and fourth quarters, the authors asked students...

...authors conducted an informal e-mail survey and telephone interviews with six faculty, monitored four electronic discussion lists, and attended panel presentations at conferences on **distance learning**.

#### Needs and Expectations

Based on the literature and the authors' experiences, the authors inferred that student expectations about **course** requirements derive from their instructors and become clarified through experience with grades and discussion with peers. Becket (1968) analyzes the subtle calculus students use to judge what will be required from them to earn the desired assignment score or **course** grade. The authors also inferred that distance learners have the same research and information needs as the on-campus learners in the same class, although...

...as opposed to direct student input regarding their expectations.

#### Faculty Expectations

In addition to their early expectations of a smooth transition to teaching in the **distance learning** context, faculty who have struggled to adapt to the challenge of **distance education** carry expectations in two other relevant areas: (1) the library research/information acquisition process, and (2) remote use of the library.

#### Faculty expectations about library...

...will have enough contact with faculty to develop a feel for the influential journals in the discipline, and that students will have access to print **materials** for browsing.

Faculty expect distance learners to use an academic library, and they make no distinction between the skills needed by a student on campus and one at a remote site. Faculty expect graduate students in particular to use a research library, given that **distance learning** makes **education** more convenient in other ways. This expectation may be at odds with the promotion of **distance education** by university administrators emphasizing convenience, especially that of taking classes near a student's home or office. The faculty impression that students want a "drive...

...faculty member mentioned the effectiveness of using live demonstrations for in-class library training in the ITV environment. One respondent found that her colleagues in **distance education** tended to let students fend for themselves in developing the best strategies for library use. In a context like DePaul, where most distance learners have taken, or are taking, **courses** on campus, faculty are not likely to expect students to need assistance in making the transition to **distance learning**.

Faculty of all ages perceive **online** resources as a "luxury" that eliminates the need for travelling from library to library in search of pertinent **material** and that permits awareness of a wider range of valuable sources than were available to them as students. However, given overloaded students' need for convenience...

...adequate delivery services, students may resort to cheap and convenient sources. However, thoughtful faculty also recognize that making students aware of the full range of **material** available can lead to increased frustration when the actual resources are not accessible without excessive student effort.

Faculty noted that some students who choose their could cover topics such as privacy, security, or electronic commerce, for which substantial **material** is available online at no cost. In addition, the background **material** in ethics and philosophy is largely in the public domain and can be found online or at any public library.

Technically adept faculty also recognize...

...faculty expect to depend more on free public databases in the future, especially as access to full-text journals grows.

Student Expectations

When registering for **distance learning courses**, the students we surveyed did not expect them to be different from other classes they had taken on campus, and they did not change that expectation by the end of the **courses**. All students expected moderate to extensive use of library services, and those expectations were met. On-campus students surveyed in the same interactive video class had the same expectations as the remote students. Thus, it seems that the nature and level of a program or **course**, and previous experience within a program of study, will set student expectations about the need to use the library for assignments, even before the instructor...

...reinforce or adjust those expectations with his or her own expectations

about assignments.

Expectations Regarding Library Services and Resources  
During its second term of offering **distance learning courses**, the nursing department adopted a statement entitled "Department of Nursing Policies & Procedures for **Distance Learning Courses**" (DePaul University, 1996). Statements such as this, even if only used internally by faculty, can do much to set or reinforce student expectations about library...

...weekends on a weekly or bimonthly basis to accommodate the needs of adult learners. However, you must also allocate time for independent work

between sessions. **Courses** may include lab, clinical, or community service projects as well as presentations, papers, and exams" (p. 1).

Most of the distance learners surveyed said that...

...of services and resources. That awareness alone might serve to increase satisfaction.

Most students used more than one library to do the assignments for their **distance learning courses**. While over half of the respondents used DePaul's main campus library, other libraries used included the remote site libraries (community college and hospital libraries...

...policy statement may do much to set expectations about library services:

"Do not expect the distant site libraries to have adequate holdings of advanced level **materials**. DePaul University or your local library may be able to obtain items for you through interlibrary loan systems, but

you must allow a minimum of to provide some form of incentives or compensation such as reciprocal service or borrowing, fee payments, database access, or the purchase of **materials** or equipment.

The way in which the institution promotes the **distance learning** program will also color students' expectations. If the institution's marketing stresses the benefit of not having to travel into the city, students might have...

...students are women, these problems can be compounded by anxiety about personal safety. During the process of choosing the first site location for DePaul's **distance learning** nursing **courses**, one administrator chose the non-urban campus of a community college over its other urban, but non-Chicago, campus because she had been told that...

...through a DePaul SLIP account. SLIP access provides an increased number of databases, basic reference sources, electronic reserves, and full-text electronic journals.

Whether a **distance learning course** or program

requires students to have Internet access and provides a SLIP account has a tremendous impact on student and faculty expectations and satisfaction with ...

...that they know will be available in the library) may be more willing to make the trip, being more or less guaranteed of finding useful **material**, and better able to estimate the time it will take.

Library staff should add to all of these expectations the same ones that traditional students...

...available from the home and other libraries and their respective costs; and

6. establish formal relationships with other libraries to provide services and resources to **distance learning** students.

As staff realize success in meeting and exceeding these needs and expectations, they will notice a corresponding change in their roles. Staff will develop...more efficient group library instruction session, regardless of how it may be offered.

While e-mail reference, electronic request forms, Web page posting of library **distance learning** policies, and Web-based library instruction have their places in providing services to remote users, the personal contact that a live voice or face can provide during telephone or two-way televideo reference transactions is important in meeting student expectations and needs. Hiring one person to be responsible for **distance learning** services and making this person's e-mail, voice-mail, fax number, and face known to all in the **distance learning** program is another extremely important means of providing personal attention, even though the library services to distance learners are most often actually provided by the library departments that provide those same services to on-campus students.

The same innovation and awareness are needed in relating to faculty. Redesigning **courses** can be a time of learning and excitement, as it was for Alley and Repp (1996). It also means reduced control and a surrender of some measure of independence. Library staff need to take advantage of the **course** redesign process by making faculty aware of their willingness to share expertise and to enter into partnerships when appropriate.

With or without **distance learning** programs, many institutions of higher education are evolving into learning communities that are student-centered. To support this trend, library staff must be successful in...

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are they...in sociology at Loyola University Chicago. She was formerly  
Instruction Coordinator for the Loop Campus Library, DePaul University.  
She  
has presented on library instruction for **distance education**  
at the Illinois Library Association annual conference. The ALA Library  
Instruction Round Table named her article on instruction for  
multidisciplinary graduate programs in research strategies...

**19980622**

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DIALOG(R)File 47: Gale Group Magazine DB(TM)  
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### Text:

...terminals and, in some cases, software. For purposes of this discussion, online search services are divided into three broad categories, based on their data base **content** and intended audiences:

...Plus data bases provide broad coverage of engineering literature. In addition, DIALOG offers at least one data base for each engineering specialty, including environmental engineering, **materials** science and metallurgy, geological engineering, textile engineering, fluid engineering, mechanical engineering, polymer science, and packaging technology.

DIALOG's news-oriented coverage improved dramatically with the... Index, produced by Bowling Green State University. Education literature is covered by the widely utilized ERIC data base, produced by the U.S. Department of **Education**, A-V **Online** from Access Innovations, and the British Education Index, produced by the University of Leeds. Other

social sciences data bases include the Criminal Justice Periodical Index...

impressive. Familiar data bases, also available through competing services, include Analytical Abstracts, Biotechnology Abstracts, Chemical Abstracts, Chemical Engineering and Biotechnology Abstracts, Ei Compendex Plus, Engineered **Materials** Abstracts, GEOBASE, GeoRef, INSPEC, Meted, and NTIS. For patent searching, Orbit offers the various CLAIMS data bases from IFI/Plenum Data Corporation, the INPADOC and...

...is limited to ABI/Inform, LABORDOC from the International Labor Office, and certain technical business data bases, such as Chemical Industry Notes, Corptech, and the **Materials** Business File. Orbit no longer offers data bases in the social sciences or humanities.

#### Questel

The Questel search service, which operates on computers located in...

a producer-operated search service, it closely resembles Wilsonline and EBSCOhost. Like Wilsonline and EBSCOhost, UMI offers CD-ROM information products that replicate the content **of** certain ProQuest Direct data bases.

UMI data bases offered by ProQuest Direct include ABI/Inform, Accounting & Tax Database, Banking ...Ei Compendex Plus, Enviroline, INSPEC, Metadex, and NTIS. Other sci-tech offerings include Aqualine from

the Water Research Centre, Aluminum Industry Abstracts and Engineered Materials **Abstracts** from Materials **Information**, Eventline and Fluidex from Elsevier, and Hard Science, a "superfile" that combines

subsets of ISMEC, Solid State Abstracts, Computer and Information Science Abstracts, and other...

...of Automotive Engineers and MIRA from the Motor Industry Research Association. ESA-IRS also provides strong subject coverage of building and construction, environmental science, materials **science**, and mechanical engineering.

Over 65 percent of ESA-IRS data bases are produced in Europe. Examples include BRIX-FLAIR, produced by the Building Research Establishment...bibliographic citations for musical scores published in the

Great Britain and overseas publications acquired by the British Library.

The Maps data base covers cartographic materials **acquired** by the British Library since 1974.

BLAISE-LINE's subject data bases include ESTC (Eighteenth Century Short Title Catalogue), which contains bibliographic information and library...

...The DOE data base contains information about publications held by the Departments of Environment and Transport. The AVMARC and HELPIS data bases cover audiovisual materials.

**As** with other European search services, BLAISE-LINE can be accessed through international telecommunication carriers or the Internet.

Its hours of operation have recently expanded. BLAISE...

...CHOIX contains bibliographic records for monographs and serial publications, while FAUTOR is its authority file. The DAVID data base contains bibliographic citations for audiovisual materials. **PRODAV** is an online directory of audiovisual producers and distributors.

LOGIBASE

contains descriptions of software products developed in Quebec or available

in French for various computer...Dow Jones Web site introduced in 1995; it

offers selected front page stories and other items from the Wall Street Journal. In pricing and content, **WSJ** Interactive competes more directly with the printed editions of the Wall Street Journal than with the

Dow Jones News/Retrieval Service, which provides online access to a much

broader array of information resources and supports more complex retrieval

capabilities. Content **overlap** between WSJ Interactive and the Dow Jones News/Retrieval Service is limited to recent issues of the Wall Street

Journal. While WSJ Interactive replicates some content **from** the U.S., European, and Asian editions of the Wall Street Journal, it provides

more detailed treatments of certain stories that appeared in the printed...

competes with CompuServe, America Online, and other consumer-oriented

services that provide business information to small organizations and private investors. There is also some content **overlap** between **Profound** and multidisciplinary services, notably DIALOG, that provide online access **to** business-oriented data bases, although Profound--as described below--packages and presents its information resources in a different manner than DIALOG.

Among its competitive advantages...

...intermediaries. Profound users merely select the type of information desired--news, market research reports, or country background, for example.

Familiarity with the scope and content **of** individual data bases is not required. To further simplify searching, Profound's Windows-based software facilitates the entry of retrieval commands, minimizes memorization requirements, and...

...to be displayed.

The basic Profound service provides unlimited access to a predetermined selection of data bases for a fixed monthly fee. An additional content **charge** is imposed for data bases included in the extended Profound service. The basic offerings include NewsNow, a news data

base that is updated **hourly** with content **obtained** from Associated Press, Extel, Knight-Ridder, Information Access Company, Reuters, and other news organizations and publishers; Quotes, which provides current prices and historical performance data...is provided for

cataloging support by bibliographic utilities such as OCLC and RLIN. The

AVLINE data base contains bibliographic references for health-related audiovisual materials **and** computer software in clinical medicine.

BioethicsLine, which covers ethics and public policy issues in medical research and health care, is produced by the Kennedy Institute...base and

Biotechnology Abstracts. Health and safety data bases include Hazardous Substances Data Bank, Health and Safety Science Abstracts, and several online collections of material **safety** data sheets. STN

International's general business offerings are limited to ABI/Inform, IAC

PROMT, and Investext, but such data bases as Materials **Business** and Plasnews cover technology-oriented business topics. STN International offers a handful of general reference and social science data bases, primarily from European publishers. Examples...Energy from the U.S. Department of Energy, and Pollution Abstracts from Cambridge Scientific Abstracts for environmental engineering. STN International's excellent coverage of materials **science** includes Metadex and the Metals Datafile, as well as the AAASD and ALFRAC data base from the Aluminum Association, Ceramics Abstracts from the American Ceramic...

...judicial cases filed by the Department of Justice on behalf of the Environmental Protection Agency since 1971; and RCRIS, which contains information about hazardous material **handlers**.

Data bases on the toxicology and carcinogenicity of chemical substances include Acquire, which contains data from experiments performed

on aquatic organisms; CESARS, which provides toxicity...

...handling of hazardous substances. Envirofate covers the transport and degradation of chemicals released in the environment. Several CIS data bases provide online access to material **safety** data sheets. As ... profiles that describe potential workplace hazards and control measures in non-technical language. The MSDS and FTSS data bases provide full-text access to material **safety** data sheets prepared by manufacturers and suppliers of chemical products. The CESARS data base, produced jointly by the Ontario Ministry of the Environment and the...

...about the health and environmental effects of nickel compounds. The TDG data base covers U.S. and Canadian regulations for packing and shipping hazardous materials. **The** PRIS data base, produced by Agriculture Canada, deals with pest control products. The RTECS data base, produced by the U.S. National Institute for Occupational...

...include BSW, a data base of fire protection information; DKI, a data base of information about plastics, rubber, and fibres; EXPL, which covers explosive materials; **the** HOLZ data base, which indexes publications about timber technology; Geoline, which provides bibliographic coverage of earth sciences; PTS-Papertech, which deals with paper chemistry and...the full texts of federal and state codes, court cases, constitutions, rules, and regulations; administrative decisions from selected government agencies; legal publications; and other materials **of** interest to legal researchers. Like their NEXIS counterparts described above, LEXIS data bases are organized into libraries that are subdivided into files of related documents or other materials. **The** General Federal Library, for example, contains files for the U.S. Code and decisions of the U.S. Supreme Court, Courts of Appeals, Circuit and...

...Code of Federal Regulations, Federal Court Rules, Federal Sentencing Guidelines, Congressional Record, Comptroller General decisions, and opinions of the U.S. Attorney General. Related materials **can** be found in the Executive Branch Library, Federal Public Contracts Library, Federal Securities Library, Federal Sentencing Library, and Federal Tax Library. The LEXIS state libraries...

...Zealand. The LEXIS World Library includes the CELEX data base of European legal and regulatory information, the CHINALAW data base, and other international legal materials. **As** with NEXIS, some information resources are included in multiple LEXIS libraries.

LEXIS provides full-text access to hundreds of law reviews, legal periodicals, and other...

...firms, LEXIS has expanded its coverage of financial and tax issues. The Accounting, Tax, and Financial Library contains annual reports, regulatory

filings, government agency materials, **and** pertinent cases.

West Publishing Company, the originator of the WESTLAW online service, was acquired in 1996 by Thomson Corporation, a publisher of news and legal...

...federal and state court decisions, accompanied by editorially prepared headnotes and synopses.

WESTLAW's legal data bases are grouped into categories, such as Jurisdictional Materials, **which** is subdivided into Federal Databases and State and Territory Databases; Practice-Area Materials; **Texts** and Periodicals; and News and Information. Federal materials **include** case law data bases from the U.S. Supreme Court, U.S. Courts of Appeals, U.S. District Courts, Federal Circuit Courts, U.S. Court specialized materials **as** General Accounting Office Reports, Jury Verdict and Settlement Summaries, and opinions and papers of certain Supreme Court Justices.

The state-oriented data bases include statutes...

...states, the District of Columbia, Puerto Rico, and the Virgin Islands.

WESTLAW also provides online access to state case law, administrative regulations, and specialized materials, **including** Uniform Commercial Code cases and public utilities reports. Practice area materials **support** legal research requirements in such specialized subject areas as antitrust and trade regulation, bankruptcy, civil rights, commercial law and contracts, environmental law, estate planning and...

...in 1995 by Wolters Kluwer, an Amsterdam-based legal publishing company.

CCH produces information in various formats, including books, loose-leaf publications, newsletters, and audio **cassettes**. During the early 1990s, CCH operated an online service called the Electronic Legislative Search System (ELSS), which provided information about pending federal and state legislation...

...based offerings, combines a microcomputer software package with an online information service that provides full-text access to over 75 CCH

publications and related materials **in** the fields of tax law, health care, human resources, and securities law. Examples include the Standard Federal Tax Reporter, U.S. Master Tax Guide, Federal...

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7/K/36 (Item 5 from file: 47)

DIALOG(R)File 47: Gale Group Magazine DB(TM)

**Abstract:** A physics professor describes how he redesigned an evening **course** for working students using computers, Internet **access**, and **two**-way video links. The **course** redesign was based on the concept of student-centered learning, and the most systematic change was a planned 'progressive learning cycle.'

**Abstract:**

**Text:**

It was January 5, 1995, when I sat down to begin preparations for teaching a freshman **course** for the following fall semester. As a seasoned professor who had been honored for outstanding teaching, I was confronted by a rich array of available...

...sat bewildered and overwhelmed by these changes. I was soon to discover that the class could not be taught within conventional boundaries of thinking and **course** design--I was about to encounter **distance education** for the first time. It would be a discovery that would lead me on a year-long journey that would result in my not only totally redesigning the **course**, but in my **revising** my entire approach to teaching. The following is an account of that odyssey--the why and how of it--so that eight months later the **course** was offered successfully, and with some unexpected dividends.

I had been teaching a freshman physics **course** for non-majors each fall for the last two years at the University of Wisconsin's freshman-sophomore center campus in Baraboo when I began planning the fall **course**. The **course** was scheduled to meet for about three hours one night a week and did not require a separate lab. Since more than half of the...

...assigned for the next week. Toward the end of the fall 1994 semester, however, the dean of the campus and I began considering how the **course** might be improved and initially settled on making three primary changes. Little did I know that we were launching a year-long adventure that would...

...learn, I would soon be asking for help in learning new ways to teach.

First, in an effort to improve the general quality of the **course**--as well as student satisfaction--we decided to change next fall's class schedule so that the **course** would be held two nights a week rather than one, which would create shorter classes. This change responded to student surveys indicating that after a...

...between class sessions--that is, a chance to let study topics "sink in" between classes before going on to the next chapter. I consolidated the **course** topics so that each major section would be covered in repeated cycles of three consecutive class sessions.

Since it is important for students to learn...

...tools, which would include searching for information on the Internet, using Cd-rom-based video simulations, seeking advice from experts via e-mail, and, of **course**, using PC tools for preparing reports.

The third change was to utilize **distance-education** technologies, not only to help the professor avoid four hours of commuting to the two formal classes, but also to provide a two-way video...

...for the state's 26-campus university system. This would include all-purpose media servers in offices, departments, colleges, and campuses for warehousing shared data, **audio** and video clips, and instructional software. General-purpose Integrated Personal Access Stations would also be available for use by students, **course** developers, instructors, and other staff.

We soon had an opportunity to set up a prototype of one of these personal access stations--one at the...

...instructional technology specialist at the distant campus in Baraboo, signed on as a partner to help implement these changes. His assistance in preparing for the **course**, and throughout the semester, proved invaluable. Preparing for teaching these kinds of **courses** demands a collaborative approach.

Mark and I used the personal access station on numerous occasions in routine two-way video conferences for business meetings, as...

...the equipment. However, when we first tried to use this rich technological environment to rehearse a class session, the changes we'd made to the **course** just didn't fit together.

The traditional style of sequential lectures stumbled over the nonlinear communications, relational concept structures, and real-time interactivity that are encouraged by the new technologies. It seemed obvious that if the distant students would be **listening** passively to a "talking head" via two-way video, it would be difficult to keep their motivation and interest levels high. We realized, without quite yet knowing why, that either the **course** would have to be completely redesigned, or we would have to abandon plans for **distance-education** delivery and its associated technologies.

These problems led to an essential first milestone ...We temporarily put aside all considerations of technology and teaching at a distance. Before I could use these new technologies to achieve the highest quality **distance learning**, I would first have to totally redesign the

**course** so that it would not only fit--but leverage--the new learning environments. Mark and I set about doing just that.

We then encountered the...

...as far as they could be taken. The epiphany was triggered when it finally struck me that I not only would have to redesign the **course**, but should also first redesign my basic approach to teaching. As long as I held on to the traditional "sage-on-a-stage" style of...

...only taking into account the new technical, economic, and social factors affecting today's students, but also becoming better informed about the alternative teaching styles, **course**-design approaches, learning functions of the human brain, and individual social factors affecting learning responses to instructional environments.

I had learned how to teach the...

...years. At home, her office is across the hall from mine. We had often exchanged casual comments about testing methods and other isolated components of **course** logistics, but we had never discussed systematic, overall **course** design--until now.

Why? While she has been "a teacher," I have been "a scientist who teaches." In retrospect, these seem much less different now...

...in the discipline I was teaching. Over the next few weeks, we had several long and fascinating discussions about alternative approaches to various components of **course** design. She was able to steer me toward some helpful literature on research and practice, ranging from the late 19th-century writings of John Dewey...

...number of creative new domains where teaching approaches are based on how and why people learn.

One of the most significant concepts that influenced my **course** redesign was the notion of "student-centered learning." Even in 1903, John Dewey complained that classrooms consisted too much of the "summaries and results of other people" wherein "the tendency is to reduce the activity of mind to a docile or passive taking in of **material** presented." It seemed that if we could articulate and achieve ideals of student-centered learning, it would serve our students especially well in a **distance-education** format rich in modern instructional technologies. Borrowing from the article "From Teaching to Learning: A New Paradigm for Undergraduate Education" by Robert Barr and John...

...student-centered learning as opposed to instructor-centered teaching.

1. Students discover knowledge rather than faculty simply transferring information to students.

2. Continuous student and **course** assessment, not just student achievement, are used as tools to analyze teaching.

3. Learning includes student-driven episodes, not just scheduled class lectures.

4. Student...

...define the questions rather than instructors simply handing out facts.

6. Student takes active and proactive roles in learning versus being passive audience or just **listening** to lectures.

7. Student learns collaboratively versus being rewarded for individual, competitive performance.

8. Educational productivity is judged in terms of student learning, not just...

...faculty-defined learning environments--beyond just the classroom.

This basic philosophy of student-centered learning guided my search for information on how to redesign our **courses**, teaching styles, and learning environments. Over the next month, I contacted local experts, as well as authors and conference speakers from around the ...viewpoints about how to improve the overall learning system. In addition, national conferences regularly convene a wealth of helpful experts focusing on modern approaches to **learning** and to **distance education**. These include conferences organized by AAHE, Oregon State University, the Western Cooperative for Educational Telecommunications, and the University of Wisconsin-Madison, to name a few...

...of these discussions and readings came the following list of eight primary areas in which I felt I needed to have expertise when redesigning the **courses**.

1. An understanding of the role of motivation in learning
  2. Assessing and using students' prior learning
  3. Inventorying students' learning styles
  4. Understanding nature of learning processes and how to best-fit learning styles
  5. Using collaborative/cooperative learning
  6. Using problem-based learning
  7. Assessing **course** and student outcomes
  8. Knowing how to use instructional technologies
- Ideally, a professor should be able to call on a team of experts with depth...

...The AAHE Teaching, Learning, and Technology Roundtable Program now provides a solid model for organizing these kinds of support teams locally.

But back to the **course** redesign. The next few months spent preparing for the fall **course** were hectic; the time frame allowed no slack. Using the principles outlined above, I developed an overall model of

the **course** inputs, teaching/learning processes, and outcomes. While this may not seem particularly ground-breaking, it was the first time I had

taken such a thorough and holistic view of the overall **course** design and learning process from the student's point of view.

The **course** began with an open disclosure to the students that this was somewhat of an adventure in teaching innovation--at least for me.

They declined an...

...notion that the best learning occurs when it can be interwoven with students' prior knowledge, even if that knowledge is not directly related

to the **course** discipline.

Much work also has been done on defining and understanding students' different "learning styles," with several popular taxonomies and instruments available for students to...

...about students' need for effectiveness and focus from the self-adaptive, technology-supported learning environments that are now feasible. I can't

imagine an outstanding **course** utilizing modern instructional technology, particularly for **distance education**, that does not rely upon a continuous loop of multilateral assessment.

The most systemic change to the **course** was a meticulously planned "progressive learning cycle" of three class periods for each major topic or chapter. This change was based on alternating between complementary...

...natural accumulation of learning about a subject in a progression from

lower-to higher-order thinking skills. At first, I was somewhat concerned

that the **course** design we created might be pedagogically pedantic, but it worked remarkably well. My prior approach to **course** design and teaching had remained satisfactory for about 15 years; this newer approach, I hope, will have a similar serviceable life span--until the forces...which students (or cooperative learning teams) evaluate the usefulness of the concepts when applied to an assigned project.

At the end of last fall's **course** (and once at mid-semester), the students and I stepped out of character and convened a brief seminar on

how the **course** was going. They responded enthusiastically to the opportunity to take ownership of the underlying process of their own learning. As a result of their candid and helpful ideas about how to improve the **course**, we made some significant mid-semester changes.

We have not yet been able to adopt fully, or to our satisfaction, many good ideas presented by...

...subsequent transition to instructional technologies to be far more straightforward.

There are many fascinating details to share about each of the component topics involved in **course** redesign, but we leave those

adventures for another article, another time. We did succeed in redesigning much of the **course** in time for the fall semester, but it required some special time-management tactics. Just before the start of classes, my wife and I were...

...isolated island beach in the British Virgin Islands. I stole a few minutes, one last time, to fine-tune the detailed plans for the redesigned **course**. It takes a lot of courage for a seasoned college teacher to interrupt someone on a Caribbean beach to ask for teaching counsel, but it ...

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 DIALOG(R)File 348: EUROPEAN PATENTS  
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Country	Number	Kind	Date		
Legal Status	Type	Pub. Date	Kind	Text	
Language					
Fulltext	Availability	Available Text	Language	Update	Word Count
Total Word Count (Document A)					
Total Word Count (Document B)					
Total Word Count (All Documents)					

**Specification:** ...wide area networks. The invention is of particular interest in the field of learning management systems in which users are provided with access to educational **content**. However, the invention is also relevant to managing access of users to other types of information such as technical databases, financial data and so forth... ...been a key process in the maintenance and development of every , civilized society. In the 20 century, the development of methods and technology for remote **education** has become increasingly important. **Distance learning** using communication by mail has become a popular method of education which is of particular interest to those who are employed and do not have time for a full time education at a college. Broadcasting of educational **material** by radio or television at a predetermined time is another way in which educational **material** method. Another remote education method uses video media. It is also known to have a video conferencing system, in which a teacher and a student view each other via a video link. In one system, educational **material** is distributed through a

general network. In this network a dedicated videophone system and a whiteboard system, which can share data via computers, are linked... ..location. It can be difficult to increase the number of users and prepare a variety of flexible educational contents.

With the increasing use of the **Internet**, remote **learning** systems have been developed which enable people to access educational **courses** from anywhere in the world, at any time, by using e.g. a browser such as Microsoft **Internet Explorer** (Trade Mark). An **educational** establishment hosts a site with one or more educational **courses**, and users who are registered may log on to the site and access the appropriate **course**. This type of system is often referred to as "e-Learning". In the last few years, computer systems that enable the delivery, management, and administration of enterprise-wide learning, known as Learning Management Systems (LMS) have become increasingly popular. Learning Management Systems are suites of tools that deliver the proper **course** or **content** to the students, at the proper time, in the proper format. An LMS typically provides registration capabilities for all types of learning events, student home pages, automated **course** catalogues, classroom resource management, skills management, records and **content** keeping, and delivery of e-Learning **courses**. Marc J. Rosenberg describes a detailed definition in prior art of the core capabilities of an LMS, in E... ..Strategies for Delivering Knowledge in the Digital Age, McGraw-Hill Books, 2001 pp162 . First, by this definition, the LMS may have a common online **course** catalogue, a common online registration system and an up-front competency assessment tool. The LMS may have the ability to launch and track e-Learning and perform e-Learning assessments and perform management of learning **materials**. After integrating knowledge management resources the LMS may perform customized reporting, support collaboration and knowledge communities and integrate the information into the respective system, e.g. a human resources system used in the management of an organisation.

In a conventional Learning Management System, the educational **content** is provided by a **content** developer and integrated into the LMS. For example, the information may be supplied by the **content** provider on one or more CD's or other media, and copied into the LMS system. A student interfaces with the LMS and the **content** is provided to the student by the LMS. This imposes limitations. The computing and network demands on the system will limit the number of users and the number of **courses** that can be accessed. There will also be problems if the **content** varies frequently, and this will be a particular problem if this type of system is used not only for education but also for accessing financial... ..users connect with a server via a school intranet or via the Internet. The server hosts a number of modules concerned with lesson management and **content**. All communications with a user are channeled through the server. United States Patent 6,190,178 discloses an **Internet** based **learning** management system. A user with a PC connects through the Internet to a server. The server includes a network connector, a controller, a remote education... ..9.

In one preferred implementation of the invention, the management site hosts an open learning management system and the information site is an external learning **content** provider. In such an arrangement, the management information comprises data relating to the user's progress with the external learning **content** which is provided from the

information site to the management site and stored on the management site for analysis. More generally, the management information comprises... site for access to the information.

Preferably, the management site hosts an open learning management system which enables access to a plurality of external learning **content** providers and the information site is an external learning **content** provider. The open learning management system can also host integrated learning **content**.

Thus, in accordance with the invention it is possible to have the advantages of an LMS, for example, in terms of management facilities and ease... management site using the Internet or a corporate Intranet. After conventional authentication routines, such as entering a user name and password, the user selects a **course** to which he or she is permitted access. The user's browser is then directed to the information site, and if appropriate, basic authentication information... that the user has been authorized by the management site to access the information, and when this is established the information such as a learning **course** will be presented in the conventional manner. However, the information can be presented on the user's screen within a standard format defined by the... information. When the users logs out of the system, the information site provides management information to the management site. In the case of an educational **course**, this could be a progress report, time spent, standard reached and so forth. In the case of a technical database, the management information could include... invention, a single source system (SSS) operates as a hosted solution through a portal on a digital distributor such as the Internet and seamlessly integrates **content** from different sources, using technology and services in an open learning management system (OLMS). The OLMS implements the **material** into a form suitable for a student, in the case that the **content** is e-Learning. Using a **course** tracking system, the OLMS logs all the activities performed with the **content** and the resources by the users of the system and stores the activity information for future use. Use may be by company human resources (HR... of the external receivers of resources and systems. A major advantage of the system is that the students do not need logins at the external **content** developers, specialist technology in the form of hardware/software, or retrieval of any specialist services, but obtain all elements needed for e-Learning at one... state of art LMS. In addition, the functionality of the OLMS is integrated in a portal solution, and is open in a way that any **content** can be integrated, and data exported to any HR systems. A prior art traditional LMS including **content** managed by the LMS is located at a specific computer such as a server, e.g. in a specific database, and the **content** needs continuous **updating**. As opposed to this, an important advantage of the OLMS is that the system manages **content** that may be located at other computers, databases or on the servers of external **content** developers. Consequently, a server comprising the OLMS of the present system has a "peer to peer" communication directly with the servers of the external **content** developers. This gives two important advantages for the user of the system, namely it provides flexibility to be able to compose the learning program freely according to needs, and the students do not need logins at the sites of the **content** developers.

The **content** developers, i.e. the agents/vendors developing **content** may be of various types. There are various schools, universities, companies that develop **content** for digital distribution, and also organizations that develop company/organisation specific or general **content**. A typical **course** comprises a sharable, educational object consisting of one or more "Assignable Units" (AU's) which are the smallest units of information that the system assigns and tracks. An AU is part of a **course** or an education program that gives the learner understanding of a specific subject. As opposed to e.g. typical university **courses**, that often have a fixed pattern of functionalities and facilities, **courses** built of AU's may be flexible and changeable to be adapted to the users need. **Content** may also be divided into **content** objects which are self-contained or self-instructive units of **content**, such as a chapter of a **course** on a specific subject.

The **course** is preferably described by a specific standard. For example, a **course** may be exemplified by, but not limited to, the SCORM (Sharable **Content** Object Reference Model) standard. SCORM (TM) is a reference model that defines a **Web-based learning "content" model** and is a set of interrelated technical specifications, that designed to meet e.g. the demands of authorities for a high level reliable and robust standard. SCORM is a standard to generate an evolving document to collect all the "bits and pieces" in one place.

The **content** may be any information provided by external vendors for the OLMS to provide to the users of the single source system. This may include e-Learning /Educational resources such as **courses**, presentations, activities, assessments, tutors etc. The **content** could be any combination of text, graphics, video and **audio**. The **content** could be a combination of synchronic (live or not) or asynchronic education. Synchronic learning is learning that is dependent on time. Users can only access **content** at scheduled sessions. The synchronic learning **content** could be pictures and **audio** of a teacher, either live or recorded and played back at a specified time. By contrast, a-synchronic learning is learning that is independent on time, that makes it possible for the user to receive any part of the education at any time.

The **content** could be an MBA program or a language **course**, for example. It may be divided into categories such as general education, working skills, and personal development. An MBA program is an example of general education. Working skills **content** is related to the learner's working situation. **Content** for personal development could be time management and language skills. The expression "soft skills" can be applied to non-technology-related, people-oriented skills such as leadership, marketing, and human relations. A complete, shareable learning program could be composed of a combination of various **content**, with the purpose of providing knowledge, training or education to a user within a specified field.

Implementation of a system will involve the stepwise process of choosing **content**, building solutions (such as portals and communities), implementing follow-up systems and design, and support implementation programs. A portal is a doorway or gateway to **content** on a computer network. The portal can serve as a single location where the users

access **content**. An e-Learning portal can be educational **content** consolidated into one web site that is accessible to the users.

A user is a verified and identified person or program accessing the system. The user is given access to **content** based on access rights given by system administrators. The users could be organizations, groups of persons or single persons. Students, administrators and HR systems are examples of users. A student is a single human user of the **content**. An administrator is a company, organisation or person who administers the OLMS and arranges for the single source solution to be provided to users.

The preferred system meets the need of seamless integration of **content** from external **content** developers, providing flexible availability of the **content** to users in a single system, making it possible for the users to compose their own learning programs.

Some preferred embodiments of systems in accordance... ..logon screen in a system in accordance with the invention;

Figure 8 is a screen shot of a typical list of **courses** available in a system in accordance with the invention;

Figure 9 is a screen shot of information about a typical **course** in a system in accordance with the invention;

Figure 10 is a screen shot of information about user activity on a **course** in a system in accordance with the invention;

Figure 11 is a screen shot of a change password screen in a... ..system in accordance with the invention;

Figure 13 is a diagram showing what happens when a user wants to access a **course** in a system in accordance with the invention; and

Figure 14 is a diagram showing what happens when a user logs out from a **course** in a system in accordance with the invention.

The following description contains computer code which is subject to copyright protection and the Figures show text... ..the copyright notice at the commencement of this specification.

Figure 1 shows a conventional LMS system. As shown at 1, a **content** developer delivers **content** that is integrated into the LMS. At 2, a student accesses the **content** by entering the LMS system. At 3, use of the system and **content** by the student is tracked by the LMS. At 4, information about user activities is accessed from the LMS by the student and other users such as administrators.

Figure 2 shows how the OLMS in accordance with the present invention is configured. At 1, a **content** developer produces external **content**, and in this case it is integrated into an LMS such as an on-line university education system. At 2, a student accesses the OLMS and requests access to **content**. At 3 the OLMS provides instructions for communicating with the external **content**. At 4, the student accesses the external **content** system directly, and at 5 the OLMS deals directly with the external system to authorize the student. The student then accesses the external **content** directly, at 6. At 7, the external system reports to OLMS, and at 8 information is made available from OLMS to the student and other users.

Figure 3 illustrates a prior art method of including other students. The **content** developer provides **content** which a student accesses in an LMS. The students are isolated within the organisation / LMS system. The **content** developers produce a single copy of the **content** for each LMS and the student accesses this copy, not a learning environment of the **content** developer. The information is limited to the LMS. In Figure 4, by contrast, The **content** provider provides **content** to an LMS, as in Figure 2. By means of the OLMS at a particular organisation, a student can access this **content** as can other students at the same organisation. External students, not connected with the organisation, can connect to the LMS in the normal manner. Students... ..private individuals, can be connected in a common virtual learning environment. Information to a student includes results from the total learning environment within the external **content** developer.

Figure 5 is an overview of a system in accordance with the invention, in which the OLMS may contain integrated **content** from **content** developers, as well as the external **content** which students will be connected to directly. The student accesses all **content** from a single source, and the **content** is not limited to specific standards or formats. The student may obtain information from both the OLMS and the external **content** providers,. Other users could be not only companies, organizations or individuals, but also systems such as a human resources system.

As shown in **content** information and data related to user activities. **Content** objects are integrated with the OLMS by adding a thin layer of protocol adapters on top of the Open LMS Core API, illustrated as Protocol Adapters 1 to n which are associated with **content** from vendors A to X. The adapters are responsible for launching the **content** objects and for exchanging user activity information with them. This means that there is no need to change the complex business logic of the core API to integrate a new type of **content** object. It also means that the OLMS can support the different e-Learning standards as well as the proprietary formats often used in more complex academic **courses** and such like. The adapters map the request formats used by the different **content** objects to the formats used in the core API to exchange user activity information. All information about the **content** objects themselves and their related user activities, is stored in a uniform way regardless of the original format. Other systems using the services provided by the OLMS may then completely disregard the different technical implementations of the **content** objects.

As noted earlier, the adapters are responsible for launching the **content** objects. The **content** objects themselves may be hosted externally on another server than the OLMS. To access these externally hosted **content** objects, the OLMS also handles authentication of the individual user on the external server. This is accomplished by appropriating information stored in the OLMS to the formats and methods used by the remote **content** server for launching the **course**. In other words, the user needs only interact consciously with one system regardless of where the **content** objects are actually located and what technology they are based on.

A significant advantage for the student is that due to the openness in the system, he/she has one access point to all e-Learning **content**, access to external **content** without a new log in, and being a part of an extended (more than company's or a particular provider's) e-Learning network. The user's experience of the **content** is the same whether it is integrated and hosted by OLMS or external **content** hosted by external **content** provider. The student accesses one **course** catalogue where all the **content** is presented the same way. Thus, the **following** are presented and work in the same way:

Information

### Accessing of **content**

Information of status/score etc

Other functionality

Information like **course**, functionality and vendor descriptions are presented identically throughout the portal. The **course** structure (**course** ID, topic areas) are built and presented the same way independent of vendor. The student uses the same functionality to access "free" **content**, getting information of applying for restricted **content** regardless of vendor or signing up for use of other resources like virtual classroom sessions. Available information is presented the same way to the student even if the **courses** are hosted externally.

As shown in the screen shot of Figure 7, a user logs into an OLMS (in this case... ..invention by giving a user name and password. Figure 8 shows how a user can have access to a range of **courses**, provided by different sources. Figure 9 shows how the OLMS, using the same interface, enables a student to have access to a **course** - in this case a **course** on "Advanced Presentation Skills" provided SkillSoft (TM). From the same screen, the user can search for additional resources e.g. by looking for books through "Amazon.co.uk" (TM). As shown in Figure 10, a student may access information on **course** progress, scores etc. provided by the external **course** provider, still using the same interface.

Additional functionality is also consistent throughout the portal. This includes updating a user's password or profile as shown... ..IDREF=F0009>12. This may include customization of language and time zone. It is easy for a student to create a personalized

curriculum or **course** list by adding and removing **courses** to "My **Courses**" using simple icons. The system may also print a diploma for completed **courses**.

A particular advantage to other users/administrator is the openness in the OLMS which make it possible to use information as input in any existing... ..be provided with statistics/metrics etc. including all different vendors/systems. It also provides a consistent way to:

Add and remove users

Add and remove **content**

Obtain statistics of system access, **course** started, **course** completed etc.

Set restrictions

Give access to restricted **content**

Schedule "meetings" in a virtual classroom

Access other resources

Some **content** may be restricted and require specific attention. This could be caused by high cost of a particular **course**, or a **course** with a fixed starting date. In this case a student would get an application form or instructions from the system.

Collaboration tools are provided, for... ..FIGREF IDREF=F0010>Figure 13 is a diagram showing the steps taken when user connects to the OLMS ("Edvantage") and requests access to a **course**. In this example it is a **course** provided by an external vendor "Academee" (TM). The user requests logon to Academee. A request is made to Academee with the following parameters:

The Academee email address for the user requesting the **course** - acdmEmail

The Academee ID of the requested **course**

edgHost - acdmCourseID

The Edvantage host name exclusive domain - edgHost

The current session ID at Edvantage - edgSession

The user's ID in Edvantage - edgUserID

The Edvantage ID for the **course** - edgCourseID

The request is processed and there is an authentication callback to Edvantage with the following parameters:

Current session ID

Edvantage User ID

Edvantage **Course** ID

The callback to Edvantage is sent as a "GET" to the host:

`http://.edvantage.net/servlet/SessionValidatorServlet?edgSession=&edg`

`UserID=`

`&edgCourseID...` ...If the session ID is validated and authentication is successful, a response is made to Academee and the user will be logged on to the **course**.

When a user logs out from the **course**, the procedure is as shown in Figure 14. A request is made to Edvantage with the following parameters:

Servername (exclusive domain)

Academee session ID

Academee email address

**Course** data

Edvantage user ID

Edvantage **course** ID

The **Course** Data could be as follows:

edgUserID - the user's ID in Edvantage

edgCourseID - Edvantage's ID for the **course**

acdmSession - current Academee session ID

acdmCourseID - Academee **course** ID

acdmEmail - Academee email address

firstAccess - date of first access ('yyyy-mm-dd hh:mm:ss')

lastAccess - date of last access ('yyyy-mm-dd hh... ...described above is a single source educational system providing e-Learning. It is operated over a hosted solution in a computer network such as the **Internet**. The **educational** system provides individual or corporate e-Learning in a computerized or digital form and provides educational **content** in a standardized form, technology in the form of hard skills and soft skills for the system to be functional and services for the user... ...adapt his learning program as flexibly as possible. The AU's may be originated at a first server used by the developers of technology or **content**, or may be provided by the OLMS system on the server providing the e-Learning to the user of the system. In this way, a specific curriculum or learning program may be adapted and offered to the specific user.

Another advantage of the system is that the **content** developer may generate reporting, not only between the user and an external system, but also between the external systems, in a way that is not... ...the system. Thus, the user is not distracted. The system is such that as viewed from the user, the system is a single source of **content** and/or resources from different sources standards as well as proprietary, 100% hosted environment. Thus, the customer does not need to invest in hardware, software... ...the system is that there are significant commercial benefits related to selling and providing the service with monthly or quarterly fees based on level of **content** and resources and number of users. This give a low risk for a user of the system arranging e-Learning to a group of individual... ...the low need to invest in different systems to provide the e-Learning. Other advantages provided by the system are uniform description and access to **content**, uniform reporting to both user and other systems such as HR systems, and single sign-on and identification. The user "goes to" the learning directly...

### **Claims: ...B1**

1. A process for providing a user with access to a learning **content** site hosting learning **content** information with controlled access, wherein there is provided a management site remote from the learning **content** site, the user logs on to the management site and the user is authenticated by the management site, the user requests the management site for access to information which is hosted at the learning **content** site, the management site provides the learning **content** site with authentication information concerning the user, and the user is connected to the learning **content** site with authenticated access to the information, and wherein there is direct communication between the user and the learning **content** site for the supply of information from the learning **content** site to the user, and also direct communication between the management site and the learning **content** site for the supply of the authentication information from the management site to the learning **content** site, and for the supply of information from the learning **content** site to the management site; characterised in that (a) the management site hosts an open learning management system, (b) to start a session of access to information which is hosted at the learning **content** site, the user must log on to the management site and provide authentication information to the management site; and (c) the learning **content** site supplies the management site with management information comprising data relating to the user's progress with the learning **content**, and such data is stored on the management site for analysis.

2. A process as claimed in claim 1, wherein the open learning management system enables access to a plurality of said external learning **content** sites.
3. A process as claimed in claim 1 or 2, wherein the open learning management system also hosts integrated learning **content**.
4. A process as claimed in claim 1, 2 or 3, wherein the user does not need to log in at the learning **content** site.
5. A process as claimed in any preceding claim, wherein the open learning management site operates a **course** tracking system logging activities performed by the user with the learning **content**, using the data relating to the user's progress with the learning **content** which is provided by the learning **content** site.
6. A process in which a user obtains access to a learning **content** site hosting learning **content** with controlled access, over a plurality of separate sessions, wherein the user logs on to a management site remote from the learning **content** site, input authentication data to the management site and is authenticated by the management site; the user selects learning **content** to which the user requires access, the management site provides the learning **content** site hosting the selected learning **content** with authentication information concerning the user, and the user is connected to that learning **content** site with authenticated **access** to the learning **content**, and wherein there is direct communication **between** the user and the learning **content** site for the supply of the learning **content** from the learning **content** site to the user, and also direct communication between the management site and the learning **content** site for the supply of the authentication information from the management site to the learning **content** site, and for the supply of information from the learning **content** site to the management site; characterised in that (a) the management site hosts an open learning management system, (b) to start each of said plurality of sessions to gain access to the learning **content** which is hosted at the learning **content** site, the user logs on to the management site and provides authentication information to the management site; and (c) the learning **content** site supplies the management site with management information comprising data relating to the user's progress with the learning **content**, and such data is stored on the management site for analysis and for review by the user.
7. A process as claimed in claim 6, wherein the open learning management system enables access to a plurality of said external learning **content** sites and the user selects the learning **content** from a list of available sites and learning **content**.
8. A process as claimed in claim 6 or 7, wherein the open learning management site operates a **course** tracking system logging activities performed by the user with the learning **content**, using the data relating to the user's progress with the learning **content** which is provided by the learning **content** site.
9. A data processing system for providing a user with access to learning **content** over a plurality of separate sessions, comprising a management data processing system and a

plurality of remote learning **content** data processing systems, wherein the management data processing system and the learning **content** data processing system are configured such that in use, when the user logs on to the management data processing system the user is required to input authentication data and is authenticated by the management data processing system; when the user selects learning **content** to which the user requires access, the management data processing system provides the learning **content** data processing system hosting the selected learning **content** with authentication information concerning the user, and the user is connected to that learning **content** data processing system with authenticated **access** to the selected learning **content**, and wherein there is direct communication **between** the user and the learning **content** data processing system for the supply of the selected learning **content** to the user, and also direct communication between the management data processing system and the learning **content** data processing system for the supply of the authentication information from the management data processing system to the learning **content** data processing system, and for the supply of information from the learning **content** data processing system to the management data processing system; characterised in that (a) the management data processing system hosts an open learning management system, (b) to start each of said plurality of sessions to gain access to the learning **content** which is hosted at the learning **content** over a plurality of separate sessions, the arrangement is such that the user must log on to the management data processing system and provides authentication information to the management data processing system; and (c) the learning **content** data processing system supplies the management data processing system with management information comprising data relating to the user's progress with the learning **content**, and such data is stored on the management data processing system for analysis and for review by the user.

10. A data processing system as claimed in claim 9, wherein the open learning management data processing system is configured to operate a **course** tracking system logging activities performed by the user with the learning **content**, using the data relating to the user's progress with the learning **content** which is provided by the learning **content** data processing system.

7/K/38 (Item 2 from file: 348)

DIALOG(R)File 348: EUROPEAN PATENTS

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## SYSTEM FOR PROVIDING CONTENT, MANAGEMENT, AND INTERACTIVITY FOR THIN CLIENT DEVICES

Country	Number	Kind	Date	
Legal Status	Type	Pub. Date	Kind	Text
Language				

Fulltext Availability	Available Text	Language	Update	Word Count
Total Word Count (Document A)				
Total Word Count (Document B)				
Total Word Count (All Documents)				

## Specification: ...B1

### Field of the Invention

A system is disclosed for providing user specified channels for moving **content** from the Internet and local storage device to one or more networked devices for access by end users. More specifically, **content** and data is delivered to a variety of devices via a caching gateway device and a local area network. Software residing on a PC or PC in combination with a storage gateway device provides **content** distribution, management, and interaction functions.

### Definitions

Web, world wide web, and Internet are used here interchangeably, and are defined as the sum total of all... ..storage gateway system

The term "message" is defined as information that is sent digitally from one computing device to another for various purposes. The term "**content**" is used to mean the information contained in digital files or streams that is meaningful, relevant, and desired, by end-users. For example, **content** is entertainment or news, that is, information that was for the most part created by entities other than the end-user, or for example, **audio** files in MP3 format. "Data" is used to mean information created by end-users such as digital schedule contents, responses from devices sent back through the system, or digital messages and email. "**Content**" and "data" are sometimes used interchangeably.

Local Area Network (LAN) is defined as a network structure that includes two or more devices that can communicate... ..home network where several computers and other smart devices, such as the Internet clock (described below), would be digitally connected for the purpose of transferring **content** and data, controlling each other, sharing programming, or presenting data and **content** to an end user.

Codec (Compression/Decompression algorithm) is a software application that is used to decode (uncompress) encoded (compressed) media files or streams. Most **content** is stored and sent in a compressed format so that the **content** files are smaller and thus take up less storage space and use less bandwidth when being transferred via the Internet. The **content** is then decoded at the playback device. For example, MP3 **audio** files are encoded and must be decoded by a microprocessor running the codec in order for the **audio content** to be presented to the user in an analog format. Codecs for both video and **audio** are a well-known field of digital media technology and will not described here in detail.

HTTP is Hyper-text transfer protocol, the protocol used... ..the 20Kbps range.

While networked PCs with Internet connectivity provide greater convenience for productivity applications, there are other trends that are influencing end user's **content** experiencing habits. For example, Personal Video Recorders (hereafter PVRs), such as the technology provided by Tivo, of Santa Clara, California, are increasing in popularity. These... ..on VCR "time-shifting" functionality, allowing users to record, pause, and start live broadcast media, almost in real time. These devices digitize terrestrially broadcast television **content** and store the files on a hard disk drive, providing much faster random access, fast-forwarding, and rewinding. A graphical user interface is provided that allows users to make **content** preference selections. A PVR supports the trend toward user controlled "anytime" access to digital **content**.

The MP3 digital **audio** format is an **audio** encoding technology that allows consumers to further compress digital **audio** files such as those found on Compact Disks, to much smaller sizes with very little decrease in sound quality. The MP3 format is the **audio** layer of MPEG-2 digital **audio** and video compression and transmission standard. For example, the MP3 format allows for compression of **audio content** to approximately 1 million bytes per minute of **audio**, at near Compact Disk quality. This capability, combined with a decrease in the cost of flash memory, a type of non-volatile silicon-based mass memory, has made it possible to develop affordable, portable digital **audio** playback devices. These are devices that are significantly smaller than portable CD players because they contain no moving parts, only flash memory and a microprocessor for decoding MP3 compressed **audio content**.

PC-based MP3 software players have been created that provide a convenient graphical user interface and software decoding of MP3 files. The most popular player... ..by American Online/Time Warner. Winamp allows users to play MP3 files on their PC, using an existing sound card with external speakers. However, to **listen** to MP3s the user must interface with the PC, using a mouse and keyboard, and must be nearby the PC sound output equipment.

The smaller size of MP3 encoded **audio** files has also enabled these files to be shared by users across the Internet, since the transfer of these files takes an acceptable amount of... ..access and distribution service businesses have appeared, such as MP3.com and Napster.com, that provide various means for users to gain access to digital **audio** files.

In addition to music, many other types of **audio content** are now available in digital format, such as spoken-word **content**, news, commentary, and **educational content**. Audible.com is an **Internet**-based repository of digital spoken-word **content**. Digital files containing **audio** recordings of books being read aloud are available for download directly from their website.

Graphic **content** such as video and still images are also increasingly available. Digital still and video cameras allow the capture and rapid transfer of images. The Ceiva... ..large LCD, and also because it must include enough memory to store the digital

images. However, the Ceiva Picture Frame is an example of digital **content** delivered beyond the PC.

Internet access is also available through the use of wireless phones with Internet browsing capability and Personal Digital Assistants (hereafter PDAs... ..demand rich media experiences that can only be supported by broadband data-rates. Additionally, use of these products supports the trend of access to Internet **content** beyond the PC.

AvantGo, Inc. of San Mateo California provides software that channels **content** from the Internet to a Palm Pilot handheld device through a PC with an Internet connection. The Palm Pilot must be docked in its cradle for the transfer to take place. The personal computer is used mainly as a communication link, as none of the **content** is stored on the computer, it passes through the PC and is stored on the Palm Pilot. The user removes the Palm Pilot from the... ..Although the Palm Pilot with the AvantGo service is not a real-time Internet device, it does further support the trend of access to Internet **content** beyond the PC.

Cable, as well as satellite TV services are efficient in providing video **content** to a wide variety of users. However, most existing cable and satellite systems provide video delivery services on a broadcast model, that is, customers must choose from a set number of **audio**/video programs that are simultaneously broadcast, with the schedule determined by the broadcast networks. With the overlaying of data services over existing cable lines, there... ..demand cannot be supported by the bandwidth available on the existing networks, due to the high data-rates required to transport high-quality video and **audio** in real-time.

The convergence of the digitization of **content**, combined with the proliferation and decreasing cost of networking and data processing components, is providing the opportunity to deliver rich **content** via the Internet, to a variety of inexpensive devices beyond the personal computer. What is required is a system that provides an economically optimal architecture and management system for allowing users to set up preferences for **content** of varying types, including rich **content**, and other services, to be automatically delivered to inexpensive client devices.

A further example of a prior art arrangement is disclosed in US 5,978... ..detailed embodiments of the invention are defined in the dependent claims.

The present invention exemplifies the new and unobvious art of a system for delivering **content**, data, and application services to a variety of thin client devices. Briefly and generally, the system is used to provide a means for end users to program preference-based **content** for delivery at various client devices, and then to automatically or under the control of the user, send the **content** to client devices for presentation to the end user. **Content** from the Internet or otherwise digital **content** is accessed and cached locally in a server in the home or enterprise, so that wide area network bandwidth is optimized. The cached **content** is sent to thin client devices via a LAN communication link that is much faster than the wide area link, resulting in rich media experiences for the end user.

Association between **content** and thin client and its delivery time schedule is specified by the user through a graphic user interface (GUI). The system also provides for inexpensive thin client devices, because the long term mass storage of **content** and data, and the processing of GUI instruction occurs at the local PC and/or storage gateway. The system for delivering **content** and services to thin client devices disclosed herein provides for a low total cost of delivering **content** beyond the PC, while insuring a high quality experience for the user in terms of **audio** and video quality, and simple interaction.

### Objects and Advantages

Further objects and advantages of the present invention are as follows:

(a) to provide a system where **content** delivery devices can be lower in cost due to the fact that mass storage, large displays, and the majority of device setup is off-loaded to the PC or PC and caching gateway.

(b) to provide high-bandwidth **content** delivery with a very low overall system cost.

(c) to provide a system that optimizes the usage of broadband bandwidth, due to the fact that **content** can be sent to the local caching device during times when bandwidth is least expensive, such as in the middle of the night or during midday.

(d) to provide a simple system for sending Internet **content** to client devices beyond the PC.

(e) to provide a system that provides economically efficient **content** delivery by utilizing un-used processing power and storage capacity in a user's PCs.

(f) to provide a means for configuring **content** and operational preferences for a thin client device that receives Internet **content**, by using the convenient and optimized interface available at a PC.

(g) to provide a device with valuable real-time interactivity with a simple, low-cost human interface.

(h) to provide a convenient drag-and-drop graphical user interface that allows users to make **content** selections using a web page and a local application.

(i) to provide a system whereby **content** that is specifically preferred by an end user is automatically retrieved and stored on a local storage device for delivery at a pre-scheduled time... ..that allows single button activation interactivity by the end user.

(k) to provide a system that allows users to gain access to information related to **content** they experience on thin client devices while engaged in other activities that make browsing at the very moment of experiencing the **content** impractical or inconvenient.

## List of Drawing Figures

FIG 1. shows a block diagram of the system at the highest level.

FIG 2. shows a block diagram of the system control application.

FIG 3. shows an example console GUI on the PC desktop.

FIG 4. shows the web-based **content** guide GUI window and the **audio** device **content** editor GUI on a PC display desktop window.

FIG 5. shows the web-based **content** guide GUI window and the **audio** device **content** editor GUI after a **content** object has been dragged and placed.

FIG 6. shows the web-based **content** guide GUI window and the **audio** device **content** editor GUI with a dialog box launched.

FIG 7. shows the web-based **content** guide GUI window and the **audio** device **content** editor GUI with the "new playlist" text box open.

FIG 8. shows the web-based **content** guide GUI window and the Internet clock **content** editor GUI.

FIG 9. shows the web-based **content** guide GUI window and the Internet clock **content** GUI after a **content** module has been dragged and placed.

FIG 10. shows the web-based **content** guide GUI window and the Internet clock **content** GUI after a **content** module has been expanded from "Monday" to "Friday".

FIG 11. shows the web-based **content** guide GUI window and the Internet clock **content** GUI and the softkey assignment pop-up menu.

FIG. 12. is an isometric view of the **audio** playback device.

FIG. 13. is an isometric view of the Internet clock.

FIG. 14. shows a tag aggregation web page.

FIG. 15. shows a PC desktop with the console and the **audio** device ontroller.

FIG. 16. shows a PC desktop with the console and the Internet clock controller.

FIG. 17. shows a functional block diagram of a storage gateway.

FIG. 18. shows a digital image editor GUI.

FIG. 19. shows a block diagram of the **audio** playback device/stereo system.

FIG 20. shows the **audio** playback device with the remote control removed.

FIG 21. is a block diagram of the tag response sequence.

FIG. 22. shows a PC desktop with a **content** preference selection web page.

FIG. 23. shows a system block diagram including a storage gateway peripheral.

FIG 24. is a home PC storage server setup flowchart.

FIG 25. is a flowchart showing the process of programming client device **content** on a website.

FIG 26. is a home PC storage server operation sequence.

FIG 27. is an image of a webpage for selecting the client... ...an image of webpage which is a first setup page for an Internet clock.

FIG 29. is an image of a webpage for programming the **content** for an Internet clock.

FIG 30. is an image of a webpage showing the results of a users selection of **content** for an Internet clock.

### Description of Preferred Embodiment

First a description of the various components of the system is provided, then a description of the...levels including at the interface level (what the end user sees and experiences) and at the action level (software and hardware interactions involving digital messages, **content**, and data). It is assumed that software engineers of reasonable ability would be able to program the functions described here using common programming languages and... ...are given when it is deemed to aid in the complete disclosure of the system

The system disclosed herein provides a communication connection and a **content** and data management system comprised of software and hardware on three different computing platforms: (1) the Internet 8, (2) a local PC 34 or PC... ...by Microsoft of Redmond, Oregon. PC 34 also includes a Universal Serial Bus (hereafter USB) port for connecting peripheral devices. PC 34 is connected to **content** and data 10 on Internet 8 via a wide area network broadband communication link 14 that provides data delivery rates ranging from 500kbps to 3... ...34. The communication message structure between client devices 78 and PC 34 and storage gateway 38 are XML formatted messages 74 sent over HTTP.

### Web **Content** Guide

Referring again to FIG. 1, **content** and data 10 on Internet 8 is expressed on web pages as an organization of text and graphical information, some of which is configured as interactive hyperlinks, all of which are formatted using HTML for presentation to end user's PCs 34 via HTTP communication protocols. A **content** selection web page 22 is shown in FIGS. 4 through FIG. 11. The graphical interactive representation of the portal to the end user is as... ..manifestation of the portal is that of software and data stored on servers located at various and disparate physical locations, but connected by Internet 8.

**Content** 10 on Internet 8 is arranged for delivery to local client devices 78 a, b, c, and d by a system that allows for graphical icons, referred to in this disclosure as **content** objects 20, that exist on **content** selection web page 22, to be dragged and dropped onto **content** editors on a PC 34. Drag and droppable **content** object 20 is a graphical representation of a file system path that points to a digital **content** file stored locally on hard disk drive 30 on PC 34 or on storage gateway 38, or on a server on Internet 8, or is the graphical designation of a URL or IP address and port number of an digital **content** stream originating on a server on Internet 8. The purpose of the portal is to simplify and facilitate the discovery and selection of **content** 10 from Internet 8 for later use on client devices 78.

**Content** selection web page 22 capability may include, but is not limited to the following functionality:

- 1) Presentation and organization of **content** and or links to **content** according to file type (e.g. MP3, MPEG, and the like), and or according to genre (e.g. music or video).
- 2) Further sub classification of **content** within file types or genres. For example a "music" category may be further divided into additional classifications such as "classical", "jazz", "pop", "internet radio" and the like.
- 3) Additional information that is relevant to **content** links. For example, a song link may be displayed with information about the artist and or reviews and links to further information such as lyrics, artist concert schedule, and the like.
- 4) A means for searching for particular **content** on the web portal and or its affiliate links.
- 5) A means for retaining user preference information for the purpose of customizing the web portal **content** according to the users preferences.

**Content** 10 from Internet 8 that may be used in the system disclosed here may be selected from a wide range of **content** selection web pages 22, that may be formatted differently, and may be available from many different **content** creators and **content** aggregators. **Content** creators include for example the music labels, such as EMI or BMG, both of New York, New York, that is, firms whose business it is to create or commission to create, and own **content**. **Content** aggregators are firms whose business it is to collect certain types of **content**, such as digital music, for the purpose of enabling

ease of selection by end users and distribution. Examples of **content** aggregators are MP3.com, or **Listen.com**

The capability for determining and aggregating the **content** objects 20 presented to a specific user on **content** selection web pages 22 are derived from **content** preferences selections provided by the user. For example, referring now to FIG. 22 a **content** preference selection web page 24 is shown with **content** selection check boxes 42 beside **content** selection labels 46 that describe a variety of **content** choices. The user uses the mouse to click on the boxes next to desired **content** types, as shown in FIG. 22.

Thereafter upon returning to **content** selection web page 22, only **content** objects 20 that relate to the selected **content** types are displayed to the user. Functionally, **content** selection labels 46 are graphical representations of HTML, links to actual **content** files, such as digital **audio** or digital video files. These links are organized and stored in a **content** link database 126 on **content** link database server 130. The actual **content** files to which **content** selection labels 46 refer are stored at the **content** creator's or **content** aggregator's servers.

### System Control Application

Referring now to FIG. 1 and 2, a system control application 18 is comprised of two sub-applications, the... ..is implemented as a Win32 application and resides and runs on PC 34. System control application 18 serves the function of managing the connection between **content** 10 and various servers on Internet 8, and PC 34 and storage gateway 38, and also manages the flow of information between PC 34 and... ..grammar. System control application database 96 is a set of files that contain system parameters and data. For example, a track (song name) shown in **audio** device **content** editor 24 is referenced as a file name and a path designation a particular hard disk drive 30 on either of PC 34 or storage... ..mouse and keyboard, or other pointing and interaction devices.

3. Allowing for manipulation of the GUI elements such as:

a. drag and drop 28 of **content** objects 20

b. GUI button activations

c. text entry.

d. pull down menu and menu selections.

4. Communication between GUI module 46 and core module... ..and control manipulations made by the end user are communicated to core module 42 where they can be acted upon.

5. Launching of specific device **content** and control editors from a system console 16, as shown initially in FIG. 3, described below.

Core module 42 consists of the portion of the system control application 18 that acts on **content** and data 10 from Internet 8 and also processes commands contained in messages sent from client devices 78, providing, but not limited to, the **following** functions:

1. Communication links:

a. **Accessing content** 10 on Internet 8 at a prescribed location as determined by user inputs into the GUI **content** editors such as **audio** device **content** editor 24 and Internet clock **content** editor 40.

b. Accessing and communicating with GUI module 46.

c. Accessing and communicating with client devices 78.

2. Managing the caching (local storage) of **content** 10 from Internet 8 or otherwise digital **content** files.

3. Streaming of **content** 10 from Internet 8 to client devices 78 connected to PC 34 and storage gateway 38 via LAN 70.

a. Managing and routing streaming digital **content** 10 from Internet 8 to client devices 78.

b. Managing and routing streams of cached digital **content** 10 files on storage gateway 38 or PC 34 to the client devices 78.

4. Scheduling - time-based automation of the accessing, caching, and streaming of **content** 10 from Internet 8 at times prescribed by the user or at times derived by direction given by the user through the GUI **content** editors such as **audio** device **content** editor 24 and Internet clock **content** editor 40. The scheduling function accesses time and date inputs associated with actions stored in system control application database 96 by GUI module. The scheduling... ..at PC 34 or storage gateway 38 and delivered to client devices 78 on an as-needed basis. For example, if the network device is **audio** playback device 86 that must be able to decode a variety of different encoded **audio** streams, then a specific CODEC (sent as a BLOB - binary large object) can be delivered to **audio** playback device 86 via LAN 70 and installed into memory 212 immediately before a **content** stream requiring that specific CODEC. Many different types of applications can be delivered just-in-time to client devices 78. The advantage of this feature is that it requires for example **audio** playback device 86 to have smaller quantities of non-volatile (flash) memory 216 and smaller quantities of volatile (SDRAM) memory 212. Reprogramming or modifying the... ..at client devices 78 is also made easier since the software is accessible at PC 34 or storage gateway 38.

8. Transcoding - Certain types of **content** will be received at PC 34 or storage gateway 38, decoded, re-encoded using a different CODEC at PC 34, and then streamed to client...

...12. One or more client device control bars 26 constitute console 16, shown in FIGS. 3 through FIGS. 11.

10. Message Transactions - text or other **content** or data from the Internet 8 can be transferred and presented on display 170 and display 132 client devices 78.

11. Tag servicing - when a tag button 128 or tag button 188 is pressed on one of client devices 78, time, data, and information pertaining to currently playing **content** is aggregated into a message and sent to tag storage and processing server 138. Tag processing services included in core module 42 acquire information that... ..device, and local server). Core module 42 time and date data is thus synchronized with an external (absolute) standard.

13. Mirroring - Users can specify that **content** selections they make using the device **content** editors are to be mirrored at various other devices. For example, a user may have **audio** playback device 86 and a car caching and playback device. The user can specify that they want **content** 10 from Internet 8 that is cached on storage gateway 38 in the home to be mirrored exactly in the car-based caching device. The end user can thereby access all of the exact same **content** 10 in the same playlist structure in both the home and in the automobile.

System control application 18 and system control application database 96 are... ..by the same LAN 70. It is anticipated that users will own and operate multiple PCs 34 in a single home for example, with different **content** 10 cached on each PC 34. However, for the purpose of simplicity in describing the basic functionality of the system, the preferred embodiment will focus... ..Client devices 78 can take many physical forms but the common attribute is that it client devices 78 are nodes on LAN 70, receiving digital **content** and data 10, and instructions, from core module 42 subsystem of the system control application 18, and sending back XML message 74 control instructions and data from interaction or data that originates at client devices 78. In the preferred embodiment client devices 78 include webpad 92, **audio** playback device 86, Internet clock 82, digital picture frame 100, and automotive storage device 142. Generally, client devices depend on LAN 70 connectivity to provide... ..their functionality. Client devices 78 range widely in the amount of integral memory capability. For purposes of clarity, the preferred embodiment shows in detail how **content** is set up, organized, and scheduled for delivery to two media player devices: **audio** playback device 86 that is connected to a stereo receiver 114, and Internet connected clock 82. However, it should be clearly understood that the system is designed to function with a wide variety of networked client devices 78 and **audio** playback device 86 and Internet clock 82 are described as examples of how the system functions.

FIG. 12 shows an isometric view of the **audio** playback device 86. The purpose of **audio** playback device 86 is to functionally connect digital **audio content** from a remote digital **audio** source to an already existing conventional stereo system **Audio** playback device 86 receives a stream of encoded **audio content** from PC 34 or storage gateway 38, real-time decodes it in real-time, and converts the uncompressed digital information into analog

electrical signals. **Audio** playback device 86 includes a plastic injection-molded main housing 168 that contains a printed-circuit board (PCB) 218. PCB 218 electrically connects the components... ..in combination with dynamic memory 212 executes instructions from its operating system and programming, referred to as the firmware 220 stored in programmable memory 216. **Audio** playback device 86 also includes a wireless network interface sub-system 228 for communicating with PC 34 and storage gateway 38, an infra-red (IR)... ..for processing IR commands from the IR remote control 90, and a display 170 sub-system for presenting text and graphical information to the user. **Audio** playback device 86 also includes a digital-to-analog converter (DAC) 224 for converting the uncompressed digital information into analog signals that are presented at the standard left and right RCA connectors, 240 and 244. **Audio** playback device 86 firmware 220 also includes a CODEC for decoding the **audio** file that is streamed to it from PC 34 or storage gateway 38. In this embodiment, remote control 90 can be attached to **audio** playback device 86 front bezel 164, as shown in FIG. 12. FIG. 20 shows remote control 90 removed from the front bezel. FIG. 19 is a block diagram showing how left analog output 240 and right analog output 244 included in **audio content** playback device 86 are connected respectively to the left line input 248 and right line input 252 on existing stereo receiver 114. Stereo receiver 114 functions in the conventional way, pre-amplifying and amplifying the **audio** signals and delivering them to the left speaker 272 and the right speaker 276. As shown in FIG. 19, **audio** playback device 86 also includes a terrestrial broadcast tuner subsystem 236 for tuning local AM and FM broadcast radio.

**Audio** playback device 86 remote control 90 includes button controls for the following functions: Power button 196 - for powering the device on and off; Source/User button 204 - for selecting the user (owner of playlists and corresponding tracks) or for selecting storage gateway 38, PCs 34, or terrestrial broadcast, from which **content** 10 from Internet 8 or other terrestrial **content** will be delivered; Playlist forward button 176 and playlist back button 172 - for advancing through and selecting playlists; Track forward button 184 and track backward... ..through and selecting tracks for playback; Play/Pause button 192 - for starting and pausing (stopping at point in the middle of a playback of an **audio** file); Stop button 200 - for stopping playback of **audio content**; Tag button 188 - for triggering the transmission of information about a currently playing track (file, Internet 8 stream, or terrestrial broadcast) back through the system for delivery to the end user on a website or for delivery to the **content** creator or **content** originator; User-defined button 206 - This button may be associated with a variety of functions as selected by the user using the **audio** playback device setup GUI.

The text descriptors associated with the playlists and associated tracks are sent to **audio** playback device 86 when requests are made by button activations. For example, if the user activates forward playlist button 176, the text string for the next playlist after the one that is currently being played is sent to **audio** playback device 86 via LAN 70, is processed, and the text is displayed on display 170. Likewise if forward-track button 184 is activated, the... ..the current playlist stored in system control application database 96 located on storage gateway 38 or PC 34, is sent by core module 38 to **audio** playback device 86, where the text string is displayed on display 170. If play button 192 is then

activated, the currently playing track is halted and the track that is being displayed is sent, decoded, and played through the stereo system. The functional interface to the user of **audio** playback device 86 is similar to that found on a typical CD changer, where the CD represents the playlist, and the tracks on the CD... ..that are labeled by graphics on display 132. Softkey buttons 124 a-e can be used as presets to allow the user to jump to **content** presentations that are associated with each button by a GUI pull-down menu 52 on Internet clock **content** editor 40, as shown in FIG. 11.

2. Volume dial

3. Snooze button 120 (on/off)

4. Source select (terrestrial radio, Internet 8 **content**)

5. The Tag Button 128 - for triggering the transmission of information about a currently playing track (file, Internet 8 stream, or terrestrial broadcast) back through the system for presentation to the end user on tag aggregation web page 56, or for delivery to the **content** creator or **content** originator.

Internet clock 82 includes microprocessor 156 and memory 140 sufficient to receive and decode a full-motion video stream. Internet clock 82 also contains an integral sound system consisting of an amplifier and speakers 136. Therefore Internet clock 82 is capable of presenting **audio**, video, and interactive multimedia. The digital electronics and packaging technology for such a device is well known in the consumer electronics industry, so it will not be described in greater detail.

#### Preferred Embodiment - Use of the System

There are three functional modes: (1) setup, (2) real-time user controlled **content**/data delivery, and (3) automatic **content**/data delivery.

The setup functions provide the user with the ability to organize and manage **content** that is to be sent to a device. **Content** 10 may be stored or generated on Internet 8, or may exist on a local storage device, such as the PC's 34 hard disk drive 30, or on storage gateway 38. This **content** is organized and managed with the use of device **content** editors that are an aspect of GUI module 46 of system control application 18.

A **content** editor is a part of GUI module 46 and is used for managing and manipulating **content** 10 that will be sent to networked client device 78. The preferred embodiment will describe **audio** device **content** editor 24, used to program and control **content** 10 for **audio** playback device 86; and Internet clock **content** editor 40, used to program and control **content** for Internet clock 82. **Content** editors are launched from console 16. This action is explained later in this disclosure.

**Audio** device **content** editor 24 provides the user with the ability to group **audio** files (tracks) into user-defined playlists, which are text associations that contain a list of and

paths to **audio** files or the URLs or IP addresses of **audio** streams, and are stored in system control application database 96. For example, a user may create a playlist called "Classical Music" that contains ten Beethoven symphonies. A common type of **audio** file format is the MP3 (MPEG layer 3) format. Certain tracks such as MP3 music files are stored on hard disk drive 30 on PC... ..media can be in a variety of formats. A popular format is in the Windows Media format, created by Microsoft Corporation of Redmond, OR. The **audio** device **content** editor 24 capability includes, but is not limited to, the following functionality:

1. Display playlists
2. Display tracks in a playlist
3. Create a new... ..the "delete" button)
8. Reorder tracks in a playlist (this is accomplished by dragging and dropping the tracks in the playlist editor).

The interaction between **audio** device **content** editor 24 and the other elements of the system will be discussed later.

The function of Internet clock **content** editor 40 is to manage **content** 10 that is associated with a scheduled routine, such as a wakeup routine. Internet clock **content** editor 40 allows the user to associate **content** 10 such as **audio** or video files (stored on the user's hard disk drive 30 or streamed over Internet 8) with an associated time and date. A set of **content** selections for the one-week period shown on Internet clock **content** editor in FIG. 8 is called a wake-up routine. For example, referring now to FIG. 9, the user can associate a pointer to a... ..8, shown as "MSNBC" in the figure, to be triggered at 8am on Monday through Friday. This association is created by dragging and dropping 28 **content** object 20 from **content** selection web page 22, to Internet clock **content** editor 40. At the prescribed time, the scheduler function in core module 42 initiates the serving of **content** designated by **content** object 20, to Internet clock 82, where it is played or presented to the user to wake them up, or for other purposes where automatic triggering is required.

The Internet clock **content** editor 40 capability includes, but is not limited to the following functionality:

1. Display calendar (time, days, weeks, months, dates, and the like)
2. Select and associate **content** with a time and date
3. Add additional **content** to a pre-existing routine
4. Delete a **content** object from a routine

5. Play **audio** files from an **audio** playlist (a playlist made using the **audio** device **content** editor)
6. Schedule the display of graphics files, such as a series of digital pictures on Internet clock 82 when it is not executing a scheduled wake-up routine.
7. Associate a **content** type or **content** module with one of the softkey buttons 124 located beside display 132.
8. Synchronize with a user's personal (digital) information manager (PIM), such as a Palm Pilot made by Palm, Inc. of Santa Clara, CA, or the Cassiopeia, made by Casio Inc., of NJ.

Both **audio** device **content** editor 24 and Internet clock **content** editor 40 are launched manually by the user by clicking on the associated client device control bar 26 on console 16. FIG. 3 shows PC desktop 12 with console 16 showing three client device control bars 26 (the PC's speakers here are not considered a client device although **audio** can be channeled to them). For example, considering FIG. 3 as the initial state of launched and running system control application 18, using the mouse the user would position the pointer on PC desktop 12 on client device control bar 26 that is associated with **audio** playback device 86 and activate the left mouse button. **Audio** device **content** editor 24 launches and the result is shown in FIG. 4, with **audio** device **content** editor 24 displayed on PC desktop 12.

PC desktop 12 in FIG. 4 also shows **content** selection web page 22. **Content** selection web page 22 can be launched in a number of ways. One method for launching **content** selection web page 22 is to activate the **Content** Guide button 30 located on the bottom of console 16 by using the mouse to place the pointer on top of **Content** Guide button 30, and pressing and releasing the left mouse button. Another launching method is to have **content** selection web page 22 "bookmarked" (Netscape Navigator) in a browser, or added to a "favorites" list in a browser (Microsoft Internet Explorer). This type of Internet 8 browsing shortcut to a specific web page is well known in the computer industry.

The spherical icons on **content** selection web page 22 are **content** objects 20 that are dragged and dropped onto the **audio** device **content** editor 24 tracks window 34. Using the mouse to control the pointer on PC desktop 12, the user moves the pointer on top of **content** object 20, depresses the left mouse button, and moves the pointer-**content** object 20 bundle to tracks window 34 of **audio** device **content** editor 24 (while continuing to depress the left mouse button). When the user releases the left mouse button, a text description of **content** object 20 appears in tracks window 34 of **audio** device **content** editor 24. FIG. 5 shows that **content** object 20 "Top 40 Radio" has been dragged from **content** selection web page 22 to **audio** device **content** editor 24 tracks window 34, with drag and drop path 28 depicted. The user would perform this drag and drop operation on **content** objects 20 for which playback at **audio** playback device 86 is desired. For example, the "Top 40 Radio" **content** object 20 represents the URL of an Internet 8 radio stream. As shown in FIG. 6, the user can also add **audio** files to the playlists using a

conventional Windows dialog box that allows the user to navigate to a specific sub-directory on PC 34. This type of PC 34 file access is a well known function of PCs 34. **Audio device content** editor 24 also provides the capability for the user to create playlists. This is accomplished by using the New List button 37, shown as part of **audio device content** editor 24 in FIG. 4 through FIG. 7. FIG. 7 shows that a playlist creation text entry box 36 is launched when the user activates New List button 37.

On the software action level, when a user creates or modifies a playlist by adding tracks such as described above using **audio device content** editor 24, GUI module 46 modifies system control application database 96, a file that contains the text names of playlists, the file names and paths of local **content** files, and URLs of streams, that the user has selected as tracks. A copy of system control application database 96 is stored on both the... ..drive. In the preferred embodiment, a portion of the files that are set up by the user as tracks in playhsts that are accessed at **audio** playback device 86 are stored on storage gateway 38. In this scenario, the user can still access tracks stored on storage gateway 38 at **audio** playback device 86 if PC 34 has been shutdown. The system may also function with the some or all of the files that constitute the tracks listed in **audio device content** editor 24 stored on the PC 34. It is obvious that PC 34 must be booted and functioning for the user to access any files stored on PC 34. The action of accessing those files at **audio** playback device 86 is discussed below.

FIG. 8 shows an initial state for using the Internet clock **content** editor 40. Internet clock **content** editor 40 is formatted as a calendar (with a time domain format), since Internet clock 82 will have varying **content** depending on the time of day or night. Internet clock **content** editor 40 is also launched from console 16 in the same way that **audio device content** editor 24 is launched. FIG. 9 shows Internet clock **content** editor 40 after **content** object 20 has been dragged onto the editor window in the "Monday" slot. FIG. 10 shows that the user has dragged **content** object 20, expanding it across the weekly calendar slots, stopping on the "Friday" slot. Once **content** object 20 is dragged and placed onto Internet clock **content** editor 40, **content** object 20 is referred to as an expandable **content** bar 48. Expandable **content** bars 48 are dragged across the day sections of Internet clock **content** editor 40 by using the mouse to position the pointer on the right side of expandable **content** bars 48, depressing the left mouse button, dragging across Internet clock **content** editor 40 (expandable **content** bar 48 will graphically elongate) while keeping the mouse button depressed. The mouse button can be released when expandable **content** bar 48 is dragged to the last day on which **content** 10 referred to by expandable **content** bar 48 is to be played. Again referring to FIG. 10, the result of this programming activity is that every day of the week between Monday and Friday, core module 42 will automatically send prescribed **content** 10 to Internet clock 82 at the time indicated on left hand side of Internet clock **content** editor 40, or at the time that the user has set as the wake-up time at Internet clock 82. Settings at Internet clock 82 take precedence over Internet clock **content** editor 40 settings.

In setup mode, GUI module 46 receives commands from the user via the GUI that is drawn on PC desktop 12. The user's actions and decisions are recorded by device **content** editors such as Internet clock **content** editor 40 and **audio device content** editor 24

which comprise GUI module 46, are encoded as digitally described messages, and are then communicated to and stored in system control application database 96 by core module 42. In the preferred embodiment, where core module 42 exists as a JAVA software program on storage gateway 38, **content** 10, the playlists, and names of tracks and stream addresses, are stored on hard disk drive 30 at storage gateway 38. PC 34 also contains... ..copy of system control application database 96.

#### Preferred Embodiment - Real-time Mode

In real-time mode, the user can activate and control the delivery of **content** 10 that has been set-up in **audio** device **content** editor 24, either at **audio** playback device 86, or at PC 34. In the preferred embodiment where **audio** playback device 86 is connected to stereo receiver 114, the user can access the playlist information on an interface at **audio** playback device 86. FIG. 12 shows that remote control 90 is used to access the source, playlist, and track (**content** object 20) at **audio** playback device 86. Display 170 included on **audio** playback device 86 displays text information according to the manipulations of the controls by the user. For example, when the user presses forward playlist button 176 on remote control 90, an IR stream is transmitted from remote control 90 and is received by IR subsystem 104 on **audio** playback device 86. This message is decoded by microprocessor 208 in **audio** playback device 86 as a forward select button selection, and an XML message 74 is sent from **audio** playback device 86 to core module 42 requesting that a string of text that represents the next playlist title be sent via high-speed LAN 70 to **audio** playback device 86. Core module 42 receives XML message 74 and sends the text string representing the next playlist to **audio** playback device 86, via high-speed LAN 70. Microprocessor 208 processes this XML message 74 and displays the text string on **audio** playback device 86 display 170.

When play button 192 is pressed, again IR subsystem 104 triggers XML formatted message 74 to be sent to core module 42 stating that play button 192 was activated. Core module 42 determines the present file or stream listing on **audio** playback device 86 display 170, and initiates a stream of that file or Internet 8 stream to **audio** playback device 86.

The other method for controlling client devices is to use a device controller GUI on PC 34. Device controllers are launched from... ..right clicking on client device control bar 26 on console 16 associated with the specific device that is to be controlled. FIG. 15 shows the **audio** playback device controller 60 and FIG. 16 shows the Internet clock device controller 88. The function of a device controller is to remotely control networked... ..devices 78, and to also allow for the setting of certain preferences and features for client devices 78. Thus continuing with our previously mentioned examples, **audio** playback device controller 60 is used to directly control **audio** playback device 86, such as to instruct **audio** playback device 86 to play, stop or pause on a particular track. Similarly Internet Clock controller 88 is used to directly control Internet Clock 82... ..clock on or off, or set the date or time, as shown in FIG. 16.

The following is a list of controls and features for **audio** playback device controller 60: a play/pause button 80 (holding down play button causes the player to fast forward, playing brief samples of the **audio** file at muted volume); a stop button 76; a track backward button 72; a track forward button 84; a balance slider 94.

The following is... ..features on Internet clock controller 88: ramp display back light during wakeup routine (slowly increase the light of the display during the wakeup routine); ramp **audio** volume during wakeup routine (slowly increase the volume of the device during the wakeup routine; length of dwell time for snooze button (the length of... ..button 120 is activated; deactivate snooze button 120 (no snoozing); length of time for sleep mode (the length of time Internet clock 82 will play **content** 10 when activated at night while the user is falling asleep). The function controls now shown in FIG. 16 are available on an additional menu accessed by activating "more" button 112.

#### Preferred Embodiment - Automatic Mode, Playback

In automatic mode, **content** 10 that the user has selected for playback in the **content** editor is sent automatically to the playback device, based on some prescribed time setting that was pre-set by the user. A scheduling function in... ..a time input in system control application database 96 and the current state of PC 34 system timer, core module 42 initiates the delivery of **content** 10 to client device 78. In the case where **content** 10 is a stream from a URL on Internet 8, a connection is created by core module 42 between the streaming URL via broadband communication link 14, through storage gateway 38, and via LAN 70 to client device 78.

#### Preferred Embodiment - Automatic Mode, Caching

Certain **content** objects 20 designate a location for file-based **content** 10 that changes on a regular basis. In this case, a specific file is a **content** object 20 instance that is cached on local PC 34 or storage gateway 38 and streamed to client device 78. For example, **content** 10 for Internet clock 82 may include a digital **audio** file with news located on a server on Internet 8 that may be **updated** every four hours. If **content** object 20 instance is a file designation that is not local, the scheduling function in core module 42 will periodically check the file at its... ..an "always-on" device. Therefore the scheduling function running on core module 42 on storage gateway 38 can be set to automatically access and acquire **content** 10 on Internet 8 at times when wide area network bandwidth is less expensive, such as overnight or during midday. Core module 42 on storage... ..processed and presented to the user and other interested entities at both PC 34 and on the web. FIG. 12 shows tag button 188 on **audio** playback device 86. FIG. 13 shows tag button 128 on Internet clock 82. During the playing of **content** 10, activation of tag button 128 by the user results in a transmission of XML message 74 back through LAN 70 informing core module 42... ..74 may include but is not limited to: metadata or meta-tags included in the file or stream (characters or images); the file name if **content** 10 is a file; the URL or IF address of the stream if **content** 10 is a stream, time; date; and user identifier.

The transmission of tag XML message 74 can have different results. FIG. 14 shows that the... ..an integral wireless LAN transceiver 58 to provide LAN 70 connectivity, that is added to an existing gateway 150 device for the purpose of adding **content** 10 mass storage and serving capability. FIG. 23 shows a network topology including PC 34, a conventional gateway 150 that is a DOCSIS cable modem... ..and functions provided by a system using a storage gateway 38 are provided with the use of a storage gateway peripheral 134.

#### Alternative Embodiment - GUI **Content** Editors on Storage Gateway or Gateway Storage Peripheral

The **content** editors can be programmed and executed across the network as Java applications stored on storage gateways 38 or on a storage gateway peripheral 134 device... ..display and input peripherals such as a keyboard and a mouse, and that has a Java Virtual Machine (JVM), would be a viable client device **content** programming, set-up, and control workstation. This embodiment could also be implemented so that it was entirely browser-based. A user could access the device **content** editors within a browser window, with the application running as a Java applet.

#### Alternative Embodiment - Digital Image Player and Sequence Editor

Another device that can... ..clock 82 to present a timed sequence of digital images on LCD 132 when Internet clock 82 is not being used for presentation of other **content** 10. Internet clock 82 can be set up to present digital images either automatically or under direct control of the user.

The user could attach... ..via the left-mouse-click on Internet clock 82 client device control bar 26 located on console 16. Launching this editor is similar to launching **audio** device **content** editor 24, described previously. FIG. 18 shows an example of digital image editor 96. There is a frame into which the user can drag-and... ..by left-clicking on the "digital image player" client device control bar 26 on console 16.

#### Alternative Embodiment - Digital Video Caching

The system for providing **content** distribution, management, and interactivity for thin client devices can also be used to access, store, and serve digital video, such as movies, TV shows, and other video **content**. User's make selections on a web site as disclosed herein. Digital video files, such as DVD movies are then downloaded and stored on user... ..for peak times of wide area network usage, and can be increased during off-peak times.

#### Alternative Embodiment - Automated PC-only

The system for providing **content** and other information services to thin client devices can be implemented with just PC 34. System control application 18 resides on hard disk drive 30... ..those provided by core module 42 and GUI module 46. System control

application database 96 also resides on PC 34, as well as all cached **content** 10. In this embodiment, LAN 70 is established by the use of a HomeRF wireless LAN access point 54. The wireless LAN access point 54... ..of PC design. In the case of a bus card, there would be an external antenna.

The automated services function of core module 42, whereby **content** 10 is automatically accessed, downloaded and cached on PC 34, and whereby **content** 10 is automatically streamed to client devices 78, is facilitated if PC 34 is always on, or if PC 34 can be automatically turned on... ..be described. PC 34 exists in the user's home, or other location where there is a desire for the ability to play Internet 8 **content** or data 10, including multimedia **content**, on one or more standalone devices apart from PC 34. There is a setup activity for the system, requiring several one-time actions by the... ..information appliance setup website associated with the system and the devices. This website would have a particular URL that would be supplied in the instruction **materials** that come with wireless LAN access point 54 or client device 78. Using the browser, or other interface to the website server, the user would... ..device 78. Here the user's account is referenced as well as the identifying serial number of user's client device 78. A volume of **content** 10 that the user specified to be automatically delivered to Internet clock 82 is downloaded to user's PC 34, where it is stored on the PC 34 hard disk drive 30. After the **content** has completely downloaded, PC 34 terminates the connection to the ISP, and shuts down. This occurs at 1:30am At this point PC 34 may... ..system establishes a connection to Internet clock 82. At 6:00am. the specified wake up time of the user, PC 34 initiates the transfer of **content** to Internet clock 82. This **content** is presented to the user as sound and images, waking up the user.

#### Alternative Embodiment - Web-based System Control Application

In an alternative embodiment there... ..a website that is accessed for the purpose of downloading and setting up the system control application 18 on PC 34, and for controlling the **content** that is sent to client devices 78, and for controlling the features of client devices 78. This website is accessible from any computer that is connected to the Internet 8 and includes a browser. The website also contains a database for storing the **content** preferences of the user or owner of client devices 78. These **content** preferences include pointers to the locations of the **content** entities, such as **audio** files, video files, or text files, on Internet 8 that the user had specified to be played on client device 78. The website could also include a server-based version of system control application 18 that would retrieve and store **content** and data according to user preferences on the web.

#### Alternative Embodiment - Webpad Client Device

In this embodiment, client device 78 is a portable computing device... ..non-volatile memory an identifying serial number, which is used to identify webpad 92 on the wireless network, and is also used to coordinate the **content** that is specified by the user to be sent to and cached at the local PC 34, and ultimately sent wirelessly to webpad 92. For example, users can access cached **content** on PC 34 or storage gateway 38 such as

digital, searchable Yellow Pages or White Pages, and other reference databases. Additionally, webpad 92 can access... ..storage gateway 38 as a router.

Furthermore, webpad 92 can be used to control other client devices 78. For example, a webpad 92 version of **audio** device **content** editor and **audio** device controller GUI allow the user to access playlists and tracks, and control **audio** playback device 86 in real time while away from PC 34. XML messages 74 are sent from webpad 92 to PC 34 or storage gateway 38, processed by core module 42, and appropriate XML messages are sent to **audio** playback device 86.

#### Alternative Embodiments

LAN 70 could be implemented with a number of different of wireless systems such as 802.11b, 802.11a, or... ..DSL or fixed wireless, or a dialup modem connection.

A phone that includes a microprocessor, memory, and network interface is also a client device. The **content** 10 that would be transferred to it would be the digital address books, such as those that are a part of PDA databases and desktop...

**Claims:** ...via a local area network (70) (LAN); and

a server having a storage device, the server coupled to the first and second interfaces to retrieve **content** (10) specified by a user via the first interface from a remote facility over the WAN, to store the **content** in the storage device, and to deliver the **content** to the at least one device via the second interface over the LAN under the control of or as specified by the user, the server characterised by a graphical user interface (46) (GUI) to associate the **content** with the at least one device and to schedule the time the **content** is to be delivered to the at least one device.

2. The apparatus of claim 1, wherein the **content** (10) is retrieved periodically.
3. The apparatus of claim 1, wherein the **content** (10) is retrieved and stored in the server according to a first schedule and is delivered to the at least one device according to a second schedule, and wherein the first and second schedules are different and controllable by the user.
4. The apparatus of claim 1, wherein the **content** is accessible by multiple devices coupled to the LAN (70) based on a schedule specified by the user.
5. The apparatus of claim 1, wherein the **content** (10) is retrieved based on availability of modified **content** at the remote facility.
6. The apparatus of claim 1, wherein the LAN (70) comprises a wireless network.
7. The apparatus of claim 1, further... ..and the second interface is within a second data processing system.

9. The apparatus of claim 8, wherein the scheduling of the downloading of the **content** (10) is performed based further upon availability of modified **content** at the remote facility.

10. The apparatus of claim 1, further comprising:

a first user interface executable at the server, the first user interface allowing a user to select the **content** to be downloaded; and

a second user interface executable at one of the plurality of devices for activating delivery of the **content** from the computing device to the at least one client device (78) over the LAN (70).

11. The apparatus of claim 10, wherein the **content** (10) is downloaded from the remote facility to the server periodically.

12. The apparatus of claim 11, wherein periodic downloading of the **content** is performed based on availability of modified **content** (10), at the remote facility.

13. The apparatus of claim 10, further comprising an application for presenting to the at least one client device (78) downloaded **content** based on information associated with the downloaded **content** stored in the storage.

14. A method, comprising:

downloading **content** (10) specified by a user from a remote facility over a wide area network (WAN) to a server on a local area network (LAN);

delivering the **content** from the server to at least one device (78) via the LAN under the control of or as specified by the user; and characterised by:

accepting user input at the server by means of a graphical user interface (GUI) to associate the **content** (10) with the at least one device coupled to the LAN and to schedule a time the **content** is to be delivered to the at least one device.

15. The method of claim 14, wherein downloading the **content** (10) comprises periodically downloading the **content**.

16. The method of claim 14, further comprising:

scheduling the downloading according to a first schedule; and

scheduling the delivering according to a second schedule... ..by the user.

17. The method of claim 16, wherein the scheduling of the downloading and delivering are performed based further upon availability of modified **content** at the remote facility.

18. The method of claim 14, further comprising retaining personal preferences specified by the user.

19. The method of claim 14, further comprising:

selecting the **content** from a Web site using a **content** selection interface at a local system according to a first time, wherein the **content** is downloaded at a second time, the **content** is delivered to the one or more of the plurality of devices at a third time, and the first time, the second time, and the third time are different.

20. The method of claim 19, wherein the downloading is performed based further upon availability of the modified **content** at the Web site.

21. The method of claim 14, further comprising:

a server receiving a request for the **content**, (10) the request including a schedule for periodically delivery of the requested **content**;

the server periodically downloading the requested **content** (10) from the remote facility over the wide area network (WAN);

storing the downloaded **content** at a storage associated with the server; and

delivering the stored **content** (10) from the server to the at least one client device (78) over the local area network (LAN) (70) according to the schedule.

22. The method of claim 21, wherein periodically downloading the requested **content** is performed further based on availability of modified **content** at the remote facility.

23. A machine-readable medium having executable code to cause a machine to perform a method, the method comprising:

downloading **content** (10) specified by a user from a remote facility over a wide area network (WAN) to a server on a local area network (LAN);

delivering the **content** from the server to at least one device (78) via the (LAN) (70) under the control of or as specified by the user; and characterised by:

accepting user input at the server by means of a graphical user interface (GUI) to associate the **content** (10) with the at least one device couple to the LAN and to schedule a time the **content** is to be delivered to the at least one device.

24. The machine-readable medium of claim 23, wherein the method further comprises:

scheduling the... ...The machine-readable medium of claim 24, wherein the scheduling of the downloading and delivering are performed based further upon an availability of the modified **content** at the remote facility.

26. The machine-readable medium of claim 23, wherein the method further comprises retaining personal preferences specified by the user.

27. The machine-readable medium of claim 23, wherein the method further comprises:

a server receiving a request for the **content** (10) the request including a schedule for periodically delivery of the requested **content**, wherein the server periodically downloads the requested **content** from the remote facility; and

storing the downloaded **content** at a storage associated with the server, wherein

the stored **content** is delivered from the server to the at least one client device (78) over the (LAN) (70) according to the schedule.

28. The machine-readable medium of claim 23 wherein periodically downloading the requested **content** is performed further based on availability of modified **content** at the remote facility.

**Dialog eLink:** Order File History  
7/K/39 (Item 1 from file: 349)  
DIALOG(R)File 349: PCT FULLTEXT  
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## **INTERNET-BASED EDUCATION SUPPORT SYSTEM, METHOD AND MEDIUM WITH MODULAR TEXT-EDITING COMPONENT FOR USE IN A WEB-BASED APPLICATION**

	Country	Number	Kind	Date
Patent				19

### **Detailed Description:**

## **INTERNET-BASED EDUCATION SUPPORT SYSTEM, METHOD AND MEDIUM WITH MODULAR TEXT-EDITING COMPONENT FOR USE IN A WEB-BASED APPLICATION**

### **CROSS-REFERENCE TO RELATED APPLICATIONS**

This application claims... ...More specifically, the present invention relates to systems and methods in which an educational instructor interacts with one or more non-collocated

students by transmitting **course** lectures, textbooks, literature, and other **course materials**, receiving student questions and input, and conducting participatory class discussions using an electronic network such as a Local Area Network (LAN), a Metropolitan Area Network... ..Wide Web (WWW). The present invention also relates to the provision of an infrastructure that allows for on-line registration and tuition payment of educational **courses**.

In addition, the present invention relates to systems and methods that may be used by system users at various levels for the distribution and use... ..the extension. The entry points may be Uniform Resource Locators (URLs) that are tracked in a system database, and associated with key entities such as **content** handlers and navigation items.

## BACKGROUNDART

The ability of educators, including educational institutions, private corporations, and institutions of higher learning, to reach potential students has generally... ..by geography. In most instances, a potential student must physically move to within commuting distance or onto a campus in order to have access to **course** instructors, classes, and **materials**. Furthermore, potential students and persons seeking knowledge of all sorts are generally limited to proximate sources of **courses** of instruction, tutoring, or training. Due to these limitations, a prospective student must either seek to learn a given subject from whatever local means of... ..would be required to further attain technological knowledge necessary to effectively use the Internet to educate non-collocated students.

Furthermore, the complexity of using the **Internet** for **educational** purposes is compounded as the number of user choices required at the user interface increases because not only must the instructor and students acquire technological... ..of the medium for educational purposes.

The exception has been so-called virtual schools. Virtual schools traditionally charge an enrollment fee, and then offer free **courses**. In lieu of paying for each **course** taken, a student is subjected to advertising while viewing on-line **course material**. While such billing and income generation methods may be acceptable for companies providing on-line training, such methods are inconsistent with traditional college and university billing practices. Colleges and universities typically charge a low enrollment fee and bill students on a per-credit or per **course** basis.

Known systems exist for distributing and using information over a network that permit activities by system users according to the level of the user... ..based training systems have difficulty presenting multiple functions and/or on-line activities. For example, there are problems in providing on-line registration for educational **courses** along with providing tuition payments. This is due in part to the incompatibility of billing practices and the ongoing customization of the integration of the registration for **courses** and payment techniques.

In addition, web-based applications often present forms in HyperText Markup Language (HTML) for users to provide information and data. Popular browsers... ..Markup

Language (DHTML), and Applets (or other browser plug-ins). DHTML may be used to make web pages more dynamic by changing their look or **content** after the page has been completely interpreted by the browser, a feature not available for HTML. DHTML may be programmed into the system to be... ..In accordance with these and other objects, provided is a system for providing to a community of users access to a plurality of on-line **courses**, comprising a plurality of user computers and a server computer in communication with each of the user computers over a network that includes LANs, MANs... ..the system having predefined characteristics indicative of a predetermined access level to the system. Each level of access to data files is associated with a **course**, and a level of control over data files associated with a **course**. The preferred server computer is capable of storing data files associated with a **course** assigning a level of access to each file, determining an access level of a user requesting access to a file, and allowing access to a file associated with a **course** as a function of the access level of the user. Accordingly, the level of access preferably is associated with the ability of a user to... ..user, and an administrator level is associated with an administrator user. However, multiple levels may be associated particular users.

For example an instructor of one **course** may also be a student in another **course**.

The instructor user is provided with an access level to enable the creation and editing of a plurality of **course** files associated with a **course**. The **course** files may include an announcement file, a **course** information file, a staff information file, a **course** documents file, an assignments file, a dropbox file, an asynchronous communication file, and a synchronous communication file.

The student user is provided with an access level to enable reading of **course** files associated with a **course**. The student user is also provided with an access level to enable modification of some of the files associated with a **course**. Also, the user may be provided with an access level to enable creation of a student file associated with a file for which the student... ..obtained from reviewing a number of student files, and the collated grades may be made available on-line to all student users associated with the **course**.

The "digital dropbox" may contain a plurality of files transferred to the server computer from one or more student users associated with the **course**. The instructor user may be provided with access to the files in the dropbox file. The instructor user may download, edit and upload the files in the dropbox.

A user may be required to enter a logon sequence into a user computer in order to be provided with access to **course** files associated with that user. The user is then provided with **access** to all **courses** with which the he/she is associated **after** entry of the logon sequence. The user is provided with a web page that may include a plurality of **course** hyperlinks. These **course** hyperlinks preferably will be associated with each **course** that the user has been enrolled either as an instructor or as a student. Selection of a **course** hyperlink will provide the user with a web page associated with the selected **course**. This web page will have **content** hyperlinks and buttons to various **content** areas associated with the **course**. The **content** hyperlinks and/or buttons may include, for example, an

announcement area hyperlink, a **course** information hyperlink, a staff information hyperlink, a **course** documents hyperlink, an assignments hyperlink, a communications hyperlink, and a student tools hyperlink.

Selection of the announcement area hyperlink provides a web page including a group of **course** announcements. Selection of the **course** information hyperlink provides a web page including information regarding the associated **course**. Selection of the staff information hyperlink provides a web page including data regarding the instructors of the associated **course**. Selection of the **course** documents hyperlink provides a web page including a listing of documents associated with the **course**, which may be active hyperlinks to the documents. Selection of the assignments hyperlink provides a web page including a group of **course** assignments. Selection of the communications hyperlink provides a web page including hyperlinks to a group of communication tools including an asynchronous communication tool and a synchronous communication tool.

In another aspect of the present invention, the system and method provide a community of users access to on-line **courses** that will include a server computer in communication with user computers over a network. The server computer preferably will be capable of creating **course** user accounts from a file of existing user accounts associated with an external computer. In this manner, existing legacy systems that have a large number...  
...to as "batch enrollment."

The present invention also includes a method for providing on-line education that further may include the steps of establishing a **course** to be offered on-line, offering the **course** to be taken on-line to a group of student users, and providing access over the network to the **course** files to student users who have enrolled in the **course**. The establishment of the **course** includes an instructor user generating a set of **course** files for use in teaching the **course**, then transferring the **course** files to a server computer for storage. The stored files will be accessible by a predefined community of student users having access to the server computer over a network.

Preferably, at least one of the **course** files may include a **course** assignment. The student user creates a student file in response to the **course** assignment and transfers the student file to the server computer. The instructor user accesses the student file from the server computer, reviews the student file to determine compliance with the **course** assignment, and assigns a grade to the student file as a function of the determination of compliance with the **course** assignment. The instructor user also may post the grade to a file on the server computer accessible only by the student user with which the grade is associated. The instructor user may repeat this process for a number of student users that are enrolled in a **course**, and then perform a statistical analysis on the grades assigned to the student users.

The results of the statistical analysis may be made available to the student users enrolled in the **course**.

An asynchronous communication tool accessible to student users enrolled in the **course**

may be provided for enabling asynchronous communication amongst the student users. Likewise, a synchronous communication tool accessible to student users enrolled in the **course** may be provided for enabling synchronous communication amongst the student users.

The present invention also provides a flexible infrastructure for colleges, universities, and other institutions... ..present invention may be configured as an open system to which anyone can connect to a server over the Internet or WWW, and create a **course** on-line that may be taken by anyone else connected over the network. Thus, anyone may create a virtual classroom available to anyone else, regardless of whether they are affiliated with a particular institution. For example, a lawyer may create a **course** in patent law on-line, and configure the system to require entry of a password to enroll. The lawyer may then disseminate the passwords to students who desire to enroll in the **course**.

Alternately, the lawyer can request the system to require payment to enroll in the **course**, such as by credit card.

One or more embodiments of the present invention may be implemented as a three-tier structure. The "first tier" functionality that incorporates the basic system, referred to as the **Course Manager**. The **Course Manager** provides **course** management system tools to enable instructors to provide their students with **course materials**, discussion boards, virtual chat, on-line assessments, and a dedicated academic resource center on the Web. As used herein tools are the additional features that system 100 offers for students and instructors beyond **content** delivery, such as e-mail, student homepages, a gradebook, and the like.

As explained further below, the **Course Manager** includes personal information management tools, **course content** management tools, **course** communication and collaboration tools, assessment tools, academic Web resources, **course** management tools, and system management tools.

The "second tier" can incorporate all of the functionality of the basic embodiment in an epicentric or portal model, also known as the **Course & Portal Manager**. The second tier provides customized institution-wide portals for faculty, students, staff, and alumni with access to numerous personalized news and information services... ..tasks. It also allows for a central access point to all of the institution's on-line services. In addition to the features of the **Course Manager**, the **Course & Portal Manager** includes enterprise database support, customizable portal modules and information services, web-based e-mail system, community management, institutional services management, extended customization for institutional branding, institution-wide **content** sharing and management, and **course** e-commerce management.

The "third tier" can be called the Advanced **Course & Portal Manager**. This tier incorporates the complete end-to-end "e-Learning" solution. In addition to the **Course** and **Portal Manager**, this third tier provides advanced Java-based APIs for unifying diverse on-line campus systems into one integrated platform allowing for user... ..that

may be accessed by anyone, whether they are affiliated with an institution or not. In this embodiment, anyone on the web can create a **course**, or enroll in a public **course** as explained subsequently. This provides for widespread dissemination of tools and utilities that enable anyone to generate his own **course** that can be taken by virtually any student.

The **course** management tools of the present invention allow instructors to monitor, control and customize their **course** web sites from a web browser interface. The secondary text editor of the present invention may be implemented as a tool useful for customization of **course** web sites. The **Course** Control Panel provides a robust and easy-to-use interface for such **course** management. The system allows instructors to customize the names of **course** web site navigation buttons to suit their needs and requirements. The system also allows the instructor to add or drop individuals or groups of students from a **course** as required. The system features extended student enrollment option, such as a limited-time self-enrollment, e.g., certain dates only for the self-enroll feature, password-protected enrollment, and defined **course** duration. This will allow self-paced study. **Courses** may be recycled between academic terms by automatically resetting discussion boards, assessment, and other **content** areas. In addition, the instructor can track student progress, grades and **content** usage through the system.

As further explained herein, the **content** management tools featured in the present invention allow instructors to post **course** documents, staff information, and assignments. Text may be typed directly into a form, or existing files may be accessed and uploaded automatically. Documents, such as word processing files, spreadsheets, slide presentations, graphics, **audio** and video clips, may be uploaded in this manner. Streaming multimedia may be provided interactivity between the student and the **course**. Pop-up maps provide easy **course** site navigation that enriches the teaching and learning experiences.

The communication and collaboration tools enhance the interaction between the students and instructors with asynchronous discussion...the assessments and student answers.

The personal information management tools in the present invention allow students, instructors, administrators and all other users to access basic **course**, personal, and institutional data through a user-centric "My Institution" screen. The user may view announcements from multiple **courses** in one central location, and maintain personal calendar, address book, user directory and to-do lists.

The present invention also provides for access to a... ..of academic resources that supplement the student's on-line education experience. The user may browse discipline-specific information, resources, and communities linked to each **course** web-site. These academic resources may be customized and personalized to fit the users' needs.

The system management tools available with the present invention allow... ..disable features for numerous user access levels. Batch user enrollment and unenrollment may be performed system wide. Preferences and options may be managed on multiple **courses** from within a central system administrator panel. The system administrator may (i) track

and report faculty, student, and **course** statistics, (ii) plan and manage system hardware requirements by assigning instructors with pre-assigned disk quotas for **content** storage, and (iii) employ system-wide announcements to broadcast messages to users about system maintenance or institutional announcements.

In the **Course** & Portal Manager embodiment, enterprise database support provides support for tens of thousands of users across an entire institution or network of institutions. User and **course** data may be managed efficiently and effectively. Moreover, large volumes of transactions may be managed efficiently and effectively. The "My Institution" interface includes portal and community functionality along with quick access to web e-mail, **course** and institutional announcements, and links to other campus departments. Administrators may enable or disable portal modules and establish required and optional modules from the portal options menu bar. Administrators may also assign different portal default settings to different user access levels, e.g. students get different portals than instructors.

**Course** e-commerce management functionality allows institutions to set prices and charge fees for **course** enrollment directly through the "e-Learning" platform.

In the Advanced **Course** & Portal Manager embodiment, the snapshot user management tool allows scheduling of one-time or periodic (e.g., hourly, daily, weekly) data integration from existing student information systems, automating **course** population and keeping the "e-Learning" environment is synchronized with administrative and student data. Moreover, the end-user authentication enables a single logon environment for... pre-existing platform infrastructure such as navigation items and/or application program interfaces (APIs), and generalize extension hooks that can be used with communication, tools, **content** and support aspects of the system.

By defining the installation infrastructure separately from the integration products, one or more embodiments of the present invention advantageously... that a user will view.

FIG. 6 is a screen display of a web page according to the present invention that shows a 1 5 **course** list and **course** catalog that are available to student users.

FIG. 7 is a screen display of a default view for a **course** web site according to the present invention.

FIG. 8 is a screen display of an announcement web page provided to a student user according to the present invention.

FIG. 9 is a screen display of a **course** contents window according to the present invention.

FIG. 10 is a screen display of an assignment web page according to the present invention.

FIG. 11 is a screen display of a **course** documents web page according to the present

invention.

FIG. 12 is a screen display of a communication center web page according to the present invention. FIG. 17 is a screen display of a second announcement web page according to the present invention.

FIG. 18 is a screen display of a **course** information web page according to the present invention.

FIG. 19 is a screen display of a **course** tasks web page according to the present invention.

FIG. 20 is a screen display of an instructor library web page according to the present invention.

FIG. 21 is a screen display of a digital dropbox web page according to the present invention.

FIG. 22 is a screen display of a **course** gradebook web page according to the present invention.

FIGs. 23A and 23B are screen displays of the **course** statistics web page according to the present invention.

FIG. 24 is a screen display of an advanced **course** and portal manager web page according to the present invention.

FIG. 25 is a screen display of a community web page according to the present invention. FIG. 26 is a screen display of an E-mail web page according to the present invention.

FIG. 29 is a screen display of a create a **course** web page according to the present invention.

FIGs. 30A and 30B are screen displays of create user web pages according to the present invention.

FIGs. 31A and 31B are screen displays of the chat web page according to the present invention.

FIG. 34 is a diagram showing information passed from a **course** registration server to a payment server according to the present invention.

FIG. 35 is a sample of a payment form according to the present invention. ...OF THE INVENTION

General System Architecture

Referring to FIG. 1A, generally at 50, the present invention comprises a system and methods for the exchange of **course content** and related information between non-

collocated instructor users and student or trainee users. An instructor user, such as at 52, 54, interacts with one or... ..noncollocated student or trainee users, such as at 56, 58, 60, by using the system and methods of the present invention to, without limitation, transmit **course** files including **course** lectures, textbooks, literature, and other **course materials**, receive student questions and input, and conduct participatory class discussions using an electronic network such as a LAN, a MAN, a WAN, the Internet and/or the WWW, of which 62 is representative. Access to the **course** file is controlled by access levels assigned to system users and control logic, which helps ensure the integrity and security of the system. Also, administrator... ..1002 will permit the system user to access, interact with, and retrieve information. For example, user interface layer 1002 can generally be used to create, **revise**, and/or delete **content** from system 1000. A secondary text editor of the present invention, which can be used in connection with a primary or native text editor... ..dynamic hypertext mark-up language (DHTML) may be associated with the HTML pages and applets to increase the systems' capabilities for user-based editing of **content**.

Portal unit 1010 can utilize portal classes 1016, for example, to render and/or aggregate the actual data displayed on portal pages, such as shown... ..be implemented as object-oriented code, organized around concepts that "map" to real world objects. In an educational context, real world objects can be a **course**, identification of the **course**, the date(s) of the **course**, and/or a description of the **course**.

In one or more embodiments of the present invention, the system provides a framework for developing external applications and "hooking" them directly into system 1000... ..to develop extensions 1040d that extend system 1000 functionality. The API's can be utilized by developers to provide system 1000 functionality with regard to **course** announcements, documents and membership, security, calendars, announcements, gradebooks, and the like, as will be subsequently discussed. An extension 1040d can be developed utilizing the Java... ..data integration functionality with respect thereto.

In one or more embodiments of the present invention, server 1040 can include a learning system 1040a that offers **course** management, and preferably utilizes an open architecture for customization, and a scalable design that allows for integration with student information systems and authentication protocols. As will be discussed herein, learning system 1040a can provide **course content**, communication capabilities, and tools such as digital drop boxes and calendars.

Portal system 1040b can optionally be provided as a logical extension of learning system... ..can also be utilized and associated with database 1052. Although FIG. 24 shows that there are six portal modules, i.e., "My Institution" tab 2422, "**Course**" tab 2424, "Academic Web" tab, "Community" tab 2426, "Services" tab 2428, and "The Web" tab 2429, in Portal Areas 2406, system 1000 may include other numbers of portal modules.

Preferably, Chameleon 1058 is a Java-based import/export utility that can translate a **course** created on one server 1040 to an intermediate format such as an FIMS **Content** &

Packaging format (IMS Global Learning Consortium, Burlington, MA) which can be XML 1060 format, so it can be exported to another server (not shown).

System... ..core subsystems 150 can reside on server 1 Web host server 130 further includes a shell service 131. Applications subsystems 110 further includes a **content** registry 111, a tool registry 112, a **course** registry 113, one or more **content** engines 114, one or more tool engines 115, and one or more **course** engines 116. Core subsystems 150 further includes a core engine 151, an access manager 152, a user interface (UI) manager 153, a user... ..one or more engines 301, a registry 302, and a context factory 303. Context factory 303 contains information mapping a user to one or more **courses** associated with that user.

Engines 301 include, but are not limited to, **content** engine(s) 114, tool engine(s) 115, **course** engine(s) 116, and core engine 151, shown in FIG. 1C. Registries 302 include, but are not limited to, **content** registry 111, tool registry 112, and **course** registry 113, shown in FIG. 1C. **Course** engine(s) 116 creates a **course** by associating a set of educational **materials** to which a student user has access, by organizing references to these informational items as contained in **content** registry 111. **Course** engine(s) 116 queries **content** registry 111 for an index of **content** engine 114 associated with a particular resource being requested by a user.

**Content** engine(s) 111 includes an assessment engine that generates quizzes to assist and instruct users in the use of system 100. For example, one such quiz provided by an assessment engine of system 100 provides step-by-step instructions to an instructor for building a **course**. The quiz is then administered on-line to the instructor to allow him to build a customized **course** to be provided using system 100.

Unlike **content** engines 111, which represent actual **course content**, tool engine(s) 115 generally includes installable programs that provide capabilities available for use with a plurality of **courses** and not permanently associated with any particular **course** or **courses**.

Instructors have different modes of teaching. Further, the same instructor may emphasize different modes of teaching depending upon the subject being taught. For example, some... ..a variety of teaching methods. By invoking a particular set of tool engines 115 during interaction with the assessment engine, an instructor can customize a **course** offering to conform to his/her preferred mode of teaching. An example of a tool engine 115 is a chat/whiteboard communication tools (synchronous and/or asynchronous) provided by system 100 that allows for student group interaction and collaboration associated with a given **course**. Other tools include, but are not limited to, announcements for broadcast of group oriented messaging, a calendar mechanism for storing date related events and information... ..editing, group pages, and e-mail services. Further capabilities provided by system 100 include, but are not limited to.

- G) a catalog listing of all **courses** available,
- (ii) a method for student users to enroll in either open enrollment or closed enrollment

situations,

(iii) a method for **course** creation including **course** templates and **course** themes, a **course**/page

editor and viewer, a site page editor and viewer,

(iv) a method for making and disseminating announcements, a calendar function, a chat board in... form information using, for example, Microsoft Paint™,

(v) a method for sending e-mail between instructors and students and groups of students, a list of **course** members and links to their web pages, a list of groups and links to their web pages, a file

sharing area, means for providing assignments to student users,

(vi) a method for conducting a variety of types of student assessments (e.g., testing), (vii)

a method for providing lesson **material** in sequential format, means for adding and removing users, help documents, maintaining a grade book and progress tracking, links to personal web pages or home pages, and a resource library containing references to all uploaded **content**.

**Course** templates allow instructors to easily reuse a **course** structure for subsequent **courses**.

**Course** themes allow the instructor to affect the look and feel of the **course** site. The secondary text editor which resides on system 100 as an application subsystem as a system tool permits instructors and students to have an enhanced ability to edit **content** provided by the system. Referring now to FIG. 1C, the secondary text editor, in connection with browser 120, may be implemented at tool engine 1... manager 154 facilitates integration of system 100 with existing or legacy network-based systems, including proprietary institutional electronic networks and systems related to grades, registration, **course** schedules, financial aid, etc., without requiring modifications to existing systems or security procedures.

According to an embodiment of the present invention, application subsystems I I...into HTML formats for the HTML formatted file.

System 100 supports a variety of business model. For example, an institution may charge each student for **courses** taken via system 100, or an instructor may use system 100 to process individual student tuition payments by providing links to e-commerce facilities... defined by a four-frame page is shown in FIG. 4. The environment includes console navbar 401, and console top 402, a toolbar 403, and **content** 404. Console navbar 401 and console top 402 may be controlled by a console frameset, while toolbar 403 and **content** 404 may be controlled by a separate frameset. For example, toolbar 403 "buttons" are generally located in the top frame of an application area. This approach allows users, and especially instructors, the ability to customize their **course** offerings while conforming to consistent user interface features that allow application areas to be shared across environments 400.

Student users and instructors interact with system... 5 would display the name of the institution that has licensed the product. The home page also provides the user with direct

access to personal, **course**, and institutional tools. As an added feature, the system enables each user to select from a large number of news and information services, so that... All of this functionality is provided in one place, the home page, so that the institution can provide a sense of community on campus, with **courses**, and with a view to the external information sources.

One or more embodiments of the present invention include Community tab 508 and Services tab 5... for users to report any security issues to the institution, connect to the card catalog, pay for classes, and register for classes.

By selecting the "**Courses**" tab 502, the user will be linked to a **Course** page 600 as shown in FIG. 6. **Course** page 600 provides direct links to the **courses** that they teach (602, 604) and/or are enrolled in (606, 608, 610). To access the **course** web-site, the user will click on the **course** title, such as at 602, 604, 606, 608 or 610, and he/she will be automatically linked to a web page associated with that **course**. The user also has the opportunity to browse the **course** catalog 612 by selecting the links on the right side of the page 600, where **courses** are listed according to category. The user may also search through the **course** search engine by selecting the Browse **Course** Catalog Link 614.

For example, by selecting the link 602 for the Introduction to Music **course**, which the user in this example is teaching, the user is shown the web page 700 illustrated in FIG. 7. The default view for the **course** web site 700 in this embodiment is the Announcements page 702, as shown in FIGs. 7 and 8. As seen at the lower part of... has left that page, by simply clicking the Announcements button 804 on the navigation toolbar 806 on the left of the web page.

Within the **course** web-site environment, the user is able to access all of the relevant **course material** and communication features as shown herein. The entire **course** outline may be displayed in a separate browser window 900, as shown in FIG. 9. At the browser window, the **course** contents are available for perusal and hyperlinking as desired. FIG. 8 shows the entire web page for Introduction to Music in two parts: an upper part and a lower part, which is scrollable as desired. One of the function buttons provided is labeled "**Course Map**" 808, which upon being clicked will pop-up the **Course** Contents window 900. The user will be able to expand or collapse the various headings provided in order to drill down into the entire **course** contents as currently configured. So, for example, the user can expand the Assignments section 902 and get a linkable list of all the assignments that have been created for the **course** to date. Any of the assignments may then be clicked for easy access. This separate window 900 is especially advantageous since it allows users to browse the entire **course**, regardless of their current location in the web-site.

By selecting any of the Assignments links 902, the user would be linked to the web page 1070 set forth in FIG. 10. This web page lists each assignment that has been compiled for the **course**, each of which can be linked to web pages that contain the full details of the particular assignment. The assignment page 1070 shown in FIG. 10 may be viewed by clicking the "Assignments" button 804 on the toolbar at the left of the **course** home page shown in FIG. 8. In general, any of the functions that are provided by toolbar buttons on

the navigation bar at the left of the **course** home page will be available in any page accessed for that site, so that easy navigation may be had and the user may jump around and visit any desired portion of the **course** web site no matter where the user is currently located. Likewise, the **Course** Contents window provides similar functionality as described above.

As shown in FIG. 10, folders that have quizzes and surveys may be linked to by viewing... ..disposal. For example, shown in FIG. 10 is a link 1072 to a multimedia presentation for "Physics in Music" that will give the student a **content**-enriched lesson that will be useful prior to the next lesson. Assignments may also be as simple as a text - based file that the student... ..in preparation for the required class session.

In addition to selecting the Assignments page 1070 or the Announcements page 700, the user may select the **Course** Infor-i-nation button 1074 on the toolbar. This will link the user to a web page that will list information provided by the instructor that is useful to the student, such as an introductory welcome message or links to helpful resources. Resources otherwise found on other parts of the **course** web site may also be shown here if desired by the **course** web site developer. Links may be in the form of URLs to other web pages or resources or to folders that include groups of logically... ..that be clicked to send an e-mail. This gives the student with quick, easy access to any instructor as may be desired throughout the **course**. Images and other types of multimedia files may also be made available at this page for enhanced **content** viewing.

The user may select the "**Course** Documents" link 1078 shown in the navigational toolbar, after which the web page II 00 on FIG. I I is provided for that **course**. This provides the user with immediate access to all documents relevant to the **course**. As a student, the user has access to all of the **course materials**, including additional links to information on the web that will enhance the instructional experience. As an Instructor, the user has the ability to post documents... ..Send E-Mail link 1202 loads a web page with various links that allow the user to send e-mail to individuals registered for the **course**, or to students only, or to instructors only.

The e-mail function is accomplished via web-based e-mail and allows for users to send... ..e-mail packages available today. Selection of the Student Roster link 1204 displays a web page that lists all of the students registered for the **course**, along with contact information if allowed by the student, such as phone number, address, and e-mail address. Selection of the Student Pages link 1206... ..learn even more easily outside of regular class hours. It can also be used as an effective method for instructors and TAs to provide a **tutorial** tool for out-of class questions and discussions that need to be saved for the purpose of sharing with the rest of that class. This... ..clicking on the Virtual Chat link 1210, the student is provided with a web page 3300 as shown in FIG. 33A, labeled "Collaboration Sessions". Each **course** has its unique chat area built into the **course** site. Students can engage in chats about the **course**, collaborate on assignments, and share information beyond the boundaries of the classroom or posted **materials**. The instructor can monitor the chats or actively engage in discussions. This real-time virtual chat is a feature that can also accommodate a whiteboard... ..administrator.

Again, referring to FIG. 10, selection of the External Links button 1082 will display a web page that is provided with URLs for relevant **content** that the instructor deems may be useful to the student community. For example, in a law **course**, links may be provided to various legal research web sites, or a Congressional web page.

Selection of the Student Tools button 1084 will display a... ..that will allow control and access to the student's digital dropbox, that is a folder of files that the student can exchange with the **course** instructor. As shown in FIG. 15, dropbox web page 1500 allows the student to type in box 1502 the resource location of a file that... ..he desires.

Selection of the ViewGrades link 1406 will deliver a web page that shows the grades that the student has been assessed in the **course**, such as for exams, quizzes, term papers, projects, and assignments. The student may be able to link to a specific exam or paper through this... ..provide well known PIM (personal information management) functionality to the student. The Calendar web page can display calendar events in a graphical display for that **course**, all the student's **courses**, all institution events, as well as personal calendar events programmed by the user. Different entities can program calendar events that can be selectively displayed by the student by selection of display functions on the page. For example, the instructor can program the calendar events for the **course**, and an administrator can program calendar events for the entire campus, and these will be displayed on the student's calendar since he is registered for the **course**. This provides the student with a greater ability to manage his calendar than has been available in the past.

The Student Manual link 1412, when... ..for a user to enter information for his/her personal contacts.

Located below the navigation button toolbar is a group of control buttons 1420. The **Course** Map button 808 gives a separate browser window with direct access to the **course** contents, as explained above. The Control Panel button 1422 takes the user to a Control Panel screen display, such as shown in FIG. 16. The Quick Unenroll link 1424 removes an administrator as a **course** user.

Similarly, a Quick Enroll link (not shown) may be provided to allow an administrator to quickly enroll in a **course** to view and troubleshoot **content** areas inaccessible to users that do not have an assigned role in the **course** Web site. Discussion Board link 1426 can take a user to a Discussion Board, such as shown in FIG. 13. Finally, Custom Data link 1428... ..control as is the student user, with additional functions defined herein. The instructor is provided with a complete set of navigational buttons for accessing announcements, **course** information, staff information, **course** documents, assignments, communication tools, external links, and student tools for a given **course** that he/she is teaching. The control panel also is given to the instructor to enable display of a set of links to **course** management and development tools that are available to an instructor.

An exemplary instructor's control panel web page 1600 is shown in FIG. 16. This control

panel 1602 provides the instructor with many features that are useful in managing the **course** he/she instructs. The control panel is divided into **Content** Areas 1604, **Course** Tools 1606, **Course** Options 1608, User Management 1610, Assessment 1612, and Assistance 1614, as described in detail subsequently below.

### **Content** Areas

Within **Content** Areas 1604, the **Course** Information link 1618 displays a web page 1800 as shown in FIG. 18 that will set forth all of the **course** information documents or folders that have been posted for the **course**, and a modify button 1802 and a remove button 1804. An add item 1806 or add folder button 1808 is also provided, which displays a web page with various fields that the instructor will fill in to define the **course** information entry. After submitting the new entry to the server, the new **course** information is posted to all students registered in the class.

Similarly, the **Course** Documents link 1622 displays a web page that will set forth all of the **course** documents or folders that have been posted for the **course**, and a modify button and a remove button as discussed above. An add item or add folder button is also provided, which displays a web page with various fields that the instructor will fill in to define the **course** documents entry. The document may be uploaded directly to the server for later access by the student, or a link to an external referenced resource may be provided, e.g., a URL. After submitting the new entry to the server, the new **course** information is posted to all students registered in the class as described above.

Likewise, the Assignments link 1.624 displays a web page that will set forth all of the **course** assignments or folders that have been posted for the **course**, and a modify button and a remove button.

An add item or add folder button is also provided, which displays a web page with various fields that the instructor will fill in to define the **course** assignment entry. The assignment entry may be uploaded directly to the server for later access by the student. After submitting the new entry to the server, the new **course** assignment is posted to all students registered in the class as described above.

Also, the External Links link 1626 displays a web page that will set forth all of the external links or folders that have been posted for the **course**, and a modify button and a remove button. An add item or add folder button is also provided, which displays a web page with various... After submitting the new entry to the server, the new external link page is posted to all students registered in the class as described above.

### **Course** Tools

Under the **Course** Tools section 1606, the Announcement link 1616 displays a web page 1700 as shown in FIG. 17 that will set forth all of the announcements that have been posted for the **course**, the author (e.g., which instructor, if there are more than one, authorized to access this area) of the announcement, and a modify button 1702... the instructor fills in and submits to the server. The newly added announcement will then be posted to all students registered in the class.

The **Course** Calendar link 1628 displays a web page that will set forth all of the calendar events that have been posted for the **course**, and a modify button and a remove button. An add item button is also provided, which displays a web page with various fields that the... Information link 1620 displays a web page that will set forth all of the staff entries, e.g., instructors, Tasks, that are involved with the **course**, and a modify button and a remove button for each entry similar to those shown in FIG. 18. An add item or add folder button... 1630 displays a web page 1900 as shown in FIG. 19 that will set forth all of the tasks that have been posted for the **course**, and a modify button 1902 and a remove button 1904.

An Add Task button 1906 is also provided, which displays a web page with various... above.

Selection of the Discussion Board link 1638 displays a web page that provides links to the available discussion boards that are associated with the **course**, such as shown in FIG. 13. A discussion board is another communication tool to use in a classroom setting. This feature is similar to Virtual... teaching assistant, the Send E-mail link 1639 allows an instructor or teaching assistant to send e-mail to individuals to participate in a particular **course**. Instructors can send e-mail to all users in a specified **course**, all groups in a specified **course**, all of the teaching assistants in a specified **course**, all of the instructors for a specified **course**, to a single user or select users in a specified **course** and/or to a single group or select groups within a specified **course**. For a student, the Send Email link 1639 can display a web page that is similar to the one the user will be provided with in his e-mail function, e.g., allows selection of individual users associated with the **course**, certain predefined groups of users such as all students.

Collaboration link 1641 permits an instructor or teaching assistant to participate in real-time lessons and... classroom sessions), or to view the classroom archives, where are previous classroom session views and/or download these sessions to the instructor's computer.

Each **course** preferably includes a virtual Classroom, which is a synchronous chat room for student and group communications. The Virtual Classroom link 3302 can be used to... to specific students. Files can be added by users using Add File link 2104. The user can also delete files that are no longer needed.

### Course Options

The Manage **Course** Menu link 1642 within **Course** Options 1608 allows instructors to add or remove navigation buttons and/or change the names and order of the buttons. In addition, the Manage **Course** link 1642 allows an instructor to add a **content** area, add and/or modify a tool area and/or a student's access rights with respect thereto, add a link external to system 100, add a **course** link, modify an area, remove an area, and order or arrange **content**.

The Archive **Course** link 1644 allows a **course**, or portions thereof, to be archived. In

one or more embodiments of the invention, a system administrator may optionally be the only individual granted the right to import a **course** from such an archive.

The Recycle **Course** link 1646 provides an easy way for an instructor to delete announcements, discussion board entries, and the like from a previous **course** that the instructor will be teaching again.

The Manage Tools link 1648 allows user to enable and/or disable the various Tools offered with system 100. Settings link 1650 provides access to an area where an instructor or administrator can make a **course** available, **update** the **course** title, decide if buttons or text should be used for **course** navigation, upload a banner, and the like.

Import **Course** Cartridge link 1643 allows an instructor to download a **Course** Cartridge.

**Course** Cartridges are collections of publisher-created **content**, available for import into instructor-designed **course** web sites that can be used in connection with system 100. **Content** in **course** cartridges can include slides, documents, quiz banks, lists of relevant links, and other **materials**.

Import Package link 1645 allows instructors to upload information from a previously existing system 100 **course** to a new, or current, **course**. Once a **course** is exported, instructors can import the whole **course**, or selected parts of the **course** into another **course** site.

Resources link 1647 can be used by an instructor to designate the resources for a **course** by customizing the number of links and the **content** available to users. Resources link 1647 can allow an instructor to display a web page 2000 as shown in FIG. 20 that will set forth all of the folders and files that have been posted by the instructor for the **course**, and a modify button 2002 and a remove button 2004. These **materials** are accessible to instructors only and not to students directly. An Add File button 2006 and an Add Folder 2008 button is also provided, which... ..from a pool of references made available to all instructors from the institution. The new entry may be uploaded directly to the server for later **access** by the instructors associated with the **course**. **After** submitting the new entry to the server, the new Instructor Library page is posted to all instructors associated with the **course**.

**Course** Copy link 1649 can be used by an instructor to copy **course materials** from one **course** site to another. For example, if an instructor has created documents in a summer version of a **course** that the **course** site, the **Course** Copy link 1649 enables the instructor to combine **materials** from two or more separate **course** sites into a single **course** site.

Export **Course** link 1651 allows an instructor to export a version of the **course** on the instructor's computer in a manner that does not affect the online version of the **course**.

#### User Management

Selection of the List/Modify Users link 1654 in the user management area 1610 displays

a web page that enables the instructor to list and/or modify the users of the **course**, while selection of the Remove Users from the **Course** link 1656 displays a web page that enables the instructor to remove a user if desired from the **course**. Selection of the Manage Groups link 1658 enables the instructor to create and edit certain user groups, e.g., gifted students or remedial students.

Selection... ..User link (not shown) can display a web page that will enable the instructor to create a new user account and enroll him in the **course**, by inputting name, address, and other information regarding the user, designating the user's access level and providing a password if desired. Selection of the Batch Create Users for **Course** link 1657 can display a web page that enables the instructor to create all of the user accounts by uploading a text file containing the user data. The Enroll User Link 1656 can display a web page that enables the instructor to enroll a user in the **course**.

#### Assessment

Assessment area 1612 allows instructors to provide quizzes, tests, and surveys on-line.

Included may be essay, true/false, multiple choice, fill-in-the... ..the instructor to select an Test Manager link 1660, a Survey Manager link 1661, a Pool Manager link 1662, a Gradebook Viewslink 1665, or a **Course** Statistics link 1666.

Selection of Test Manager link 1660 allows an instructor to create, modify, and remove tests.

Instructors can create tests to check the knowledge and skill level of the users enrolled in the **course**.

Tests permit the Instructor to assign point values to each question on exams or quizzes. Student answers are submitted for grading, and the results are... ..non-graded surveys. In surveys correct answers are not identified and a statistical analysis of the answers is provided. This feature can be used for **course** or instructor evaluations, or to gather demographic information.

Instructors can use the Survey Manager to guide **course** curriculum by asking students questions on pacing, the need for clarification, and the like.

Selection of Pool Manager link 1662 can be selected to display... ..are logically linked, usually by subject matter, so that an instructor may draw from a pool to obtain existing questions and answers sets from other **courses**, instructors, semesters, etc., and not have to "recreate the wheel" every time they generate or modify a test. By clicking the Add Pool button, the... ..assessment manager.

Selection of Gradebook link 1664 displays a web page that enables the instructor to perform various functions with respect to the on-line **course** gradebook. FIG. 22 illustrates a web page for a **course** gradebook 2200, which provides a variety of information including consolidated grades, individual assignment/test scores, direct

access to specific assignments or tests by student, or... ..to view only items in the Exam category. Finally, link 2218 can be used allow an instructor to filter users by last name.

Selection of **Course Statistics** link 1666 in the assessment area displays a web page that enables the instructor to set parameters and view certain statistics for their **course**. Some instructors may want to analyze their class by how much their on-line **materials** are being accessed, but very few have the opportunity to take the time or the effort to determine these numbers. By using the **course** statistics web page 2300 shown in FIGs. 23A and 23B, the system provides a rich tool set for instructors to evaluate the relative statistics of their **courses**. These statistics may be valuable for evaluating on-line versus non-on-line **courses** to determine the relative efficacy of on-line **materials** and how they are enhancing the **course**. The **Course Statistics** web page has input fields for selecting a report filter, which will yield a report with Overall Summary of **Course Usage**, Main **Content** Areas report, Communication Areas Report, Group Areas Report, or Student Areas Report. A time period must be specified, which may be all dates or between... ..mail to an administrative contact.

#### Administrator Functionality

The System Admin tab 2401 provides various portal areas where a system administrator can perform various administrative functions. **Courses** area 2414 permits an administrator to perform 15 various operations with regard to a **course**. List / Modify **Courses** 2402 permits searching by a **Course ID** (or a few characters e.g., MEDI), Instructor (by User id or Name) or a key word in the Title or **Course Description**. Once created by using link 2436, **courses** can also be modified by using link 2402.

Create **Course** link 2436 permits a **course** to be created. A Create **Course** web page 2900 is shown in FIG. 29. The administrator will enter the requested information about the desired **course**; e.g., the **course** name, and ID, and a textual description on the web page. The administrator can then specify properties of the buttons that will be used along with the **course** to match his aesthetic concerns. The administrator can then specify various options, such as the subject area of the **course**, whether guests may access the **course**, if the **course** is currently available, if a **course** cartridge may be obtained and its URL and access key, and the instructor ID for the **course**.

Batch Create **Courses** link 2404 allows an administrator to add large numbers of **courses**.

Using a batch file, **courses** are entered into system 100 quickly and without having to go through the Create **Course** 2436 link to add each **course**. Similarly, Batch Enroll Users in a **Course** link 2406 allows an administrator enroll large numbers of users into one or more **courses**.

Remove **Course** link 2408 allows an administrator to remove a **course** from system 100. Copy **Course** link 2410 creates a new **course** from an existing **course**. This link is useful when creating a new **course** that covers much of the same **material** or if the same **course** is offered under different **Course IDs**. An administrator may choose which **course** areas to copy, so not all **course materials** needs to transfer to the new **course**. Import **Course**

link 2412 can be used to insert packaged **course materials** into a new **course**. Administrators create archive files, optionally saved in ZEP format, from the Export **Course** link 2416 permits archived **course materials** to be imported to an existing **course**.

Exporting a **course** does not remove the **course** from system 1 The Archive **Course** link 241.8 can be used to create a record of a **course**, optionally including user interactions. A **course** can be archived to recall student performance or interactions at later time. The archive can be saved as a.ZIP file.

Restore **Course** link 2420 permits the archived **course** to be restored to its pre-archived condition.

Settings link 2422 may lead to a menu of functions (not shown) that may be used to define parameters for all the **courses** on system 100. Images and Icons link 2424 permits an icon theme to be selected.

Catalog link 2426 can be activated to bring up a list of **courses** offered in a particular subject area of discipline.

Organizations area 2428 provides functionality and links very similar to those provided in **Courses** area 2414. Organizations area 2428 may hold **content** and tools for institutional communities outside the scope of academic learning or training. Clubs, sports teams, and service organizations are all examples of communities that... ..be used in connection with Organizations area 2428.

Users area 2432 provides a list / modify, create and batch processing capabilities similar to those provided for **Courses** area. For example, Create User link 2433 can take an administrator to a web page such as shown in FIGs. 30A and 30B, which enables... ..may be given an administrative access level at this point by selecting the appropriate option that is available, such as, None, System Admin, System Support, **Course** Creator, Account Admin). The role of the user will determine the access and control of the system that the user will have as explained throughout... ..of user data in predefined formats compatible with the system), Batch Enroll Users, which will cause the importing of a file to enroll users in **courses** and clubs that exist in the system), and Batch Remove Users, which will cause the importing of a file to remove users from the system).

In addition, Observer Management link 2434 permits users having a role of an observer to be managed. Observers are users who can view the same **content** as a user, but cannot modify or interact with **content**. The observer role can be used to let parents of a student or an academic advisor monitor progress.

Portal area 2437 allows an administrator to... ..2446 allows an administrator to monitor or review system usage. For example, a standard report can be provided that provides information on the number of **courses**, number of users, overall usage, and cumulative hits. An advanced reporting capability can also be provided that enables institutions to use data from predefined fields... ..Announcements page, such as shown in FIG. 5.

Messages posted from the Announcements function on the can also optionally appear in an Announcements section of **course** Web sites, such as shown in FIG. 5 at 510.

Institution Calendar Link 2456 allows an administrator to manage institution events through... to pass data to URLs requiring that data in a query string. For example, with system 100, the last portion of a URLs for a **course** can be

/bin/common/**course**.pl?**course**-id=

<UNIQUE

id>, where the is a variable that may be passed using the context passing APIs. Context passing is useful when implementing system 100 extensions that require **content** from system 100 to generate a URL. Base64Encoding can be used. For enhanced security, CryptiXTM may be used to protect the transfer of possibly... accessing system 100. An exemplary gateway page will allow a user to login to system 100, and optionally direct the user to a **course** catalog (such as shown in FIG. 6 at 612),


Assistance area 2479 can be used by users to gain access to support services or information... in a single view, as shown in FIG. 27. The calendar utility gives students and teachers access to all calendar events for each of the **courses** they are enrolled in, as well as institutional calendar events.


Since e-mail is a popular application on the Internet today, and the leading reason... 00 and 3200 that can be accessed by tab 3102 to provide links that allow students and teachers to find and access academic resources and **content**. These resources are also context-sensitive to the **course** discipline. For example, if one accesses the academic web resources from an accounting **course**, he/she is automatically directed to news and information sources that are relevant to accounting. The user has access to news, web links, reference WO... used as an open platform environment, where anyone with access to the Internet may register as an instructor to create, administer, and make available a **course** to anyone else with Internet access. Thus, by entering a publicly available web-site such as www.blackboard.com, a user may register as an instructor and be provided with an instructor control panel for creating **course** as described herein. To create the **course**, the user will define **course** parameters, such as a description, enrollment options, announcements, assessments, and **course materials**, etc., and provide them in the various web pages as described above. The user can then let others know about the availability of the **course** on-line, and a potential student may access the publicly available web site to enroll in the **course**. In this manner, anyone can create a virtual classroom without the need to be affiliated with an institution, and disseminate knowledge through the **course** as previously unavailable.

#### Semi-Structured **Content**, and Flexible Text Handlers

FIG. 39 shows an exemplary text editor 3900 that can be used in connection with the present invention. Text editor 3900 can be used by an instructor, for example, to add **content** to a **course**, as indicated at pulldown menu 3910. **Course** Documents shown at pulldown menu 3910 can correspond to **Course** Documents button 1078 shown in FIG. 10. At field 3912, a user, such as an instructor, can also optionally specify his/her own name for **content** that is to be added.

In operation, a user can type in ASCH text, such as "This is an equation placeholder:", as shown in FIG... ..box 3916 of FIG. 42, the "to additional data. Here is a custom text object:" is also entered by a user. The data associated with "**content**-block(some-id, type-spec)" can be raw data, such as equation 4002, associated with a text tool 3902, 3904 that can be stored for run-time resolution and displayed to the user. There may be one or more raw data blocks that correspond to, or are associated with a "**content**-block." When a user submits, for example, an HTML web form, presentation data can be queried from each provider on one or more servers because each "**content**-block(sorne-id, type-spec)" can represent an identifier that can be generated by text editor 3900. "some-id" can represent a pointer to the...Editor 4000, physically resides, such as a file location. Text tools 3902 and/or 3904 can also use a syntax, structure or format other than "**content**-block(some-id, typespec)" to achieve the stated objectives and still be within the scope of the present invention.

The contents of template 3916 shown... ..to additional data. Here is a custom text object: 

The " @ X @ **content**-block(some-id , type spec) @ X @ " shown in FIG. 42 corresponds to the " 

7/K/40 (Item 2 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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Country	Number	Kind	Date
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### Detailed Description:

...403 "buttons" are generally located in the top frame of an application area. This approach allows users, and especially instructors, the ability to customize their **course** offerings while conforming to consistent user interface features that allow application areas to be shared across environments 400.

Student users and instructors interact with system... ..5 would display the name of the institution that has licensed the product. The home page also provides the user with direct access to personal, **course**, and institutional tools. As an added feature, the system enables each user to select from a large number of news and information services, so that... ..All of this functionality is provided in one place, the home page, so that the institution can provide a sense of community on campus, with **courses**, and with a view to the external information sources.

One or more embodiments of the present invention include Community tab 508 and Services tab 5... ..for users to report any security issues to the institution, connect to the card catalog, pay for classes, and register for classes.

By selecting the "**Courses**" tab 502, the user will be linked to a **Course** page 600 as shown in FIG. 6. **Course** page 600 provides direct links to the **courses** that they teach (602, 604) and/or are enrolled in (606, 608, 610). To access the **course** web-site, the user will click on the **course** title, such as at 602, 604, 606, 608 or 610, and he/she will be automatically linked to a web page associated with that **course**. The user also has the opportunity to browse the **course** catalog 612 by selecting the links on the right side of the page 600, where **courses** are listed according to category. The user may also search through the **course** search engine by selecting the Browse **Course** Catalog Link 614.

For example, by selecting the link 602 for the Introduction to Music **course**, which the user in this example is teaching, the user is shown the web page 700 illustrated in FIG. 7. The default view for the **course** web site 700 in this embodiment is the Announcements page 702, as shown in FIGs. 7 and 8. As seen at the lower part of... ..has left that page, by simply clicking the Announcements button 804 on the navigation toolbar 806 on the left of the web page.

Within the **course** web-site environment, the user is able to access all of the relevant **course material** and communication features as shown herein. The entire **course** outline may be displayed in a separate browser window 900, as shown in FIG. 9. At the browser window, the **course** contents are available for perusal and hyperlinking as desired. FIG. 8 shows the entire web page for Introduction to Music in two parts: an upper part and a lower part, which is scrollable as desired. One of the function buttons provided is labeled "**Course Map**" 808, which upon being clicked will pop-up the **Course** Contents window 900. The user will be able to expand or collapse the various headings provided in order to drill down into the entire **course** contents as currently configured. So, for example, the user can expand the Assignments section 902 and get a linkable list of all the assignments that have been created for the **course** to date. Any of the assignments may then be clicked for easy access. This separate window 900 is especially advantageous since it allows users to browse the entire **course**, regardless of their current location in the web-site.

By selecting any of the Assignments links 902, the user would be linked to the web page 1070 set forth in FIG. 10. This web page lists each assignment that has been compiled for the **course**, each of which can be linked to web pages that contain the full details of the particular assignment. The assignment page 1070 shown in FIG. 10 may be viewed by clicking the "Assignments" button 804 on the toolbar at the left of the **course** home page shown in FIG. 8. In general, any of the functions that are provided by toolbar buttons on the navigation bar at the left of the **course** home page will be available in any page accessed for that site, so that easy navigation may be had and the user may jump around and visit any desired portion of the **course** web site no matter where the user is currently located. Likewise, the **Course** Contents window provides similar functionality as described above.

As shown in FIG. 10, folders that have quizzes and surveys may be linked to by viewing... ..disposal. For example, shown in FIG. 10 is a link 1072 to a multimedia presentation for "Physics in Music" that will give the student a **content**-enriched lesson that will be useful prior to the next lesson. Assignments may also be as simple as a text -

based file that the student... ..in preparation for the required class session.

In addition to selecting the Assignments page 1070 or the Announcements page 700, the user may select the **Course** Information button 1074 on the toolbar. This will link the user to a web page that will list information provided by the instructor that is useful to the student, such as an introductory welcome message or links to helpful resources. Resources otherwise found on other parts of the **course** web site may also be shown here if desired by the **course** web site developer. Links may be in the form of URLs to other web pages or resources or to folders that include groups of logically... ..that be clicked to send an e-mail. This gives the student with quick, easy access to any instructor as may be desired throughout the **course**. Images and other types of multimedia files may also be made available at this page for enhanced **content** viewing.

The user may select the "**Course Documents**" link 1078 shown in the navigational toolbar, after which the web page I 100 on FIG. I I is provided for that **course**. This provides the user with immediate access to all documents relevant to the **course**. As a student, the user has access to all of the **course materials**, including additional links to information on the web that will enhance the instructional experience. As an instructor, the user has the ability to post documents... ..Send E-Mail link 1202 loads a web page with various links that allow the user to send e-mail to individuals registered for the **course**, or to students only, or to instructors only.

The e-mail function is accomplished via web-based e-mail and allows for users to send... ..e-mail packages available today. Selection of the Student Roster link 1204 displays a web page that lists all of the students registered for the **course**, along with contact information if allowed by the student, such as phone number, address, and e-mail address. Selection of the Student Pages link 1206... ..learn even more easily outside of regular class hours. It can also be used as an effective method for instructors and TAs to provide a **tutorial** tool for out-of class questions and discussions that need to be saved for the purpose of sharing with the rest of that class. This... ..clicking on the Virtual Chat link 1210, the student is provided with a web page 3300 as shown in FIG. 33A, labeled "Collaboration Sessions". Each **course** has its unique chat area built into the **course** site. Students can engage in chats about the **course**, collaborate on assignments, and share information beyond the boundaries of the classroom or posted **materials**. The instructor can monitor the chats or actively engage in discussions. This real-time virtual chat is a feature that can a Iso accommodate a... ..administrator.

Again, referring to FIG. 10, selection of the External Links button 1082 will display a web page that is provided with URLs for relevant **content** that the instructor deems may be useful to the student community. For example, in a law **course**, links may be provided to various legal research web sites, or a Congressional web page.

Selection of the Student Tools button 1084 will display a... ..that will allow control and access to the student's digital dropbox, that is a folder of files that the student can exchange with the **course** instructor. As shown in FIG. 15, dropbox web page 1500 allows the student to type in box 1502 the resource location of a file that... ..he desires.

Selection of the ViewGrades link 1406 will deliver a web page that shows the grades that the student has been assessed in the **course**, such as for exams, quizzes, term papers, projects, and assignments. The student may be able to link to a specific exam or paper through this... ..provide well known PIM (personal information management) functionality to the student. The Calendar web page can display calendar events in a graphical display for that **course**, all the student's **courses**, all institution events, as well as personal calendar events programmed by the user. Different entities can program calendar events that can be selectively displayed by the student by selection of display functions on the page. For example, the instructor can program the calendar events for the **course**, and an administrator can program calendar events for the entire campus, and these will be displayed on the student's calendar since he is registered for the **course**. This provides the student with a greater ability to manage his calendar than has been available in the past.

The Student Manual link 1412, when... ..for a user to enter information for his/her personal contacts.

Located below the navigation button toolbar is a group of control buttons 1420. The **Course** Map button 808 gives a separate browser window with direct access to the **course** contents, as explained above. The Control Panel button 1422 takes the user to a Control Panel screen display, such as shown in FIG. 16. The Quick Unenroll link 1424 removes an administrator as a **course** user.

Similarly, a Quick Enroll link (not shown) may be provided to allow an administrator to quickly enroll in a **course** to view and troubleshoot **content** areas inaccessible to users that do not have an assigned role in the **course** Web site. Discussion Board link 1426 can take a user to a Discussion Board, such as shown in FIG. 13. Finally, Custom Data link 1428... ..control as is the student user, with additional functions defined herein. The instructor is provided with a complete set of navigational buttons for accessing announcements, **course** information, staff information, **course** documents, assignments, communication tools, external links, and student tools for a given **course** that he/she is teaching. The control panel also is given to the instructor to enable display of a set of links to **course** management and development tools that are available to an instructor.

An exemplary instructor's control panel web page 1600 is shown in FIG. 16. This control panel 1602 provides the instructor with many features that are useful in managing the **course** he/she instructs. The control panel is divided into **Content** Areas 1604, **Course** Tools 1606, **Course** Options 1608, User Management 1610, Assessment 1612, and Assistance 1614, as described in detail subsequently below.

### **Content** Areas

Within **Content** Areas 1604, the **Course** Information link 1618 displays a web page 1800 as shown in FIG. 1.8 that will set forth all of the **course** information documents or folders that have been posted for the **course**, and a modify button 1802 and a remove button 1804. An add item 1806 or add folder button 1808 is also provided, which displays a web

page with various fields that the instructor will fill in to define the **course** information entry. After submitting the new entry to the server, the new **course** information is posted to all students registered in the class.

Similarly, the **Course Documents** link 1622 displays a web page that will set forth all of the **course** documents or folders that have been posted for the **course**, and a modify button and a remove button as discussed above. An add item or add folder button is also provided, which displays a web page with various fields that the instructor will fill in to define the **course** documents entry. The document may be uploaded directly to the server for later access by the student, or a link to an external referenced resource may be provided, e.g., a URL. After submitting the new entry to the server, the new **course** information is posted to all students registered in the class as described above.

Likewise, the **Assignments** link 1624 displays a web page that will set forth all of the **course** assignments or folders that have been posted for the **course**, and a modify button and a remove button.

An add item or add folder button is also provided, which displays a web page with various fields that the instructor will fill in to define the **course** assignment entry. The assignment entry may be uploaded directly to the server for later access by the student. After submitting the new entry to the server, the new **course** assignment is posted to all students registered in the class as described above.

Also, the **External Links** link 1626 displays a web page that will set forth all of the external links or folders that have been posted for the **course**, and a modify button and a remove button. An add item or add folder button is also provided, which displays a web page with various... After submitting the new entry to the server, the new external link page is posted to all students registered in the class as described above.

### **Course Tools**

Under the **Course Tools** section 1606, the **Announcement** link 1616 displays a web page 1700 as shown in FIG. 1.7 that will set forth all of the announcements that have been posted for the **course**, the author (e.g., which instructor, if there are more than one, authorized to access this area) of the announcement, and a modify button 1702... the instructor fills in and submits to the server. The newly added announcement will then be posted to all students registered in the class.

The **Course Calendar** link 1628 displays a web page that will set forth all of the calendar events that have been posted for the **course**, and a modify button and a remove button. An add item button is also provided, which displays a web page with various fields that the... Information link 1620 displays a web page that will set forth all of the staff entries, e.g., instructors, Tasks, that are involved with the **course**, and a modify button and a remove button for each entry similar to those shown in FIG. 18. An add item or add folder button... 1630 displays a web page 1900 as shown in FIG. 19 that will set forth all of the tasks that have been posted for the **course**, and a modify button 1902 and a remove button 1904.

An Add Task button 1906 is also provided, which displays a web page with various...  
...above.

Selection of the Discussion Board link 1638 displays a web page that provides links to the available discussion boards that are associated with the **course**, such as shown in FIG. 13. A discussion board is another communication tool to use in a classroom setting. This feature is similar to Virtual... ..teaching assistant, the Send E-mail link 1639 allows an instructor or teaching assistant to send e-mail to individuals to participate in a particular **course**. Instructors can send e-mail to all users in a specified **course**, all groups in a specified **course**, all of the teaching assistants in a specified **course**, all of the instructors for a specified **course**, to a single user or select users in a specified **course** and/or to a single group or select groups within a specified **course**. For a student, the Send Email link 1639 can display a web page that is similar to the one the user will be provided with in his e-mail function, e.g., allows selection of individual users associated with the **course**, certain predefined groups of users such as all students.

Collaboration link 1641 permits an instructor or teaching assistant to participate in real-time lessons and... ..classroom sessions), or to view the classroom archives, where are previous classroom session views and/or download these sessions to the instructor's computer.

Each **course** preferably includes a virtual Classroom, which is a synchronous chat room for student and group communications. The Virtual Classroom link 3302 can be used to... ..to specific students. Files can be added by users using Add File link 2104. The user can also delete files that are no longer needed.

### Course Options

The Manage **Course** Menu link 1642 within **Course** Options 1608 allows instructors to add or remove navigation buttons and/or change the names and order of the buttons. In addition, the Manage **Course** link 1642 allows an instructor to add a **content** area, add and/or modify a tool area and/or a student's access rights with respect thereto, add a link external to system 100, add a **course** link, modify an area, remove an area, and order or arrange **content**.

The Archive **Course** link 1644 allows a **course**, or portions thereof, to be archived. In one or more embodiments of the invention, a system administrator may optionally be the only individual granted the right to import a **course** from such an archive.

The Recycle **Course** link 1.646 provides an easy way for an instructor to delete announcements, discussion board entries, and the like from a previous **course** that the instructor will be teaching again.

The Manage Tools link 1.648 allows user to enable and/or disable the various Tools offered with system 100. Settings link 1650 provides access to an area where an instructor or administrator can make a **course** available, **update** the **course** title, decide if

buttons or text should be used for **course** navigation, upload a banner, and the like.

Import **Course** Cartridge link 1643 allows an instructor to download a **Course** Cartridge.

**Course** Cartridges are collections of publisher-created **content**, available for import into instructor-designed **course** web sites that can be used in connection with system 100.

**Content** in **course** cartridges can include slides, documents, quiz banks, lists of relevant links, and other **materials**.

Import Package link 1645 allows instructors to upload information from a previously existing system I 00 **course** to a new, or current, **course**. Once a **course** is exported, instructors can import the whole **course**, or selected parts of the **course** into another **course** site.

Resources link 1647 can be used by an instructor to designate the resources for a **course** by customizing the number of links and the **content** available to users. Resources link 1647 can allow an instructor to display a web page 2000 as shown in FIG. 20 that will set forth all of the folders and files that have been posted by the instructor for the **course**, and a modify button 2002 and a remove button 2004. These **materials** are accessible to instructors only and not to students directly. An Add File button 2006 and an Add Folder 2008 button is also provided, which... ..from a pool of references made available to all instructors from the institution. The new entry may be uploaded directly to the server for later **access** by the instructors associated with the **course**. **After** submitting the new entry to the server, the new Instructor Library page is posted to all instructors associated with the **course**.

**Course** Copy I link 1649 can be used by an instructor to copy **course materials** from one **course** site to another. For example, if an instructor has created documents in a summer version of a **course** that the instructor wishes to add to a fall **course** site, the **Course** Copy link 1649 enables the instructor to combine **materials** from two or more separate **course** sites into a single **course** site.

Export **Course** link 1651 allows an instructor to export a version of the **course** on the instructor's computer in a manner that does not affect the online version of the **course**.

User Management

Selection of the List/Modify Users link 1654 in the user management area 1610 displays a web page that enables the instructor to list and/or modify the users of the **course**, while selection of the Remove Users from the **Course** link 1656 displays a web page that enables the instructor to remove a user if desired from the **course**. Selection of the Manage Groups link 1658 enables the instructor to create and edit certain user groups, e.g., gifted students or remedial students.

Selection... ..User link (not shown) can display a web page that will enable the instructor to create a new user account and enroll him in the **course**, by inputting name, address, and other information regarding the user, designating the user's access level and

providing a password if desired Selection of the Batch Create Users for **Course** link 1657 can display a web page that enables the instructor to create all of the user accounts by uploading a text file containing the user data. The Enroll User Link 1656 can display a web page that enables the instructor to enroll a user in the **course**.

#### Assessment

Assessment area 1612 allows instructors to provide quizzes, tests, and surveys on-line.

Included may be essay, true/false, multiple choice, fill-in-the... ..the instructor to select an Test Manager link 1660, a Survey Manager link 1661, a Pool Manager link 1662, a Gradebook Viewlink 1665, or a **Course** Statistics link 1666.

Selection of Test Manager link 1660 allows an instructor to create, modify, and remove tests.

Instructors can create tests to check the knowledge and skill level of the users enrolled in the **course**.

Tests permit the Instructor to assign point values to each question on exams or quizzes. Student answers are submitted for grading, and the results are... ..non-graded surveys. In surveys correct answers are not identified and a statistical analysis of the answers is provided. This feature can be used for **course** or instructor evaluations, or to gather demographical information.

Instructors can use the Survey Manager to guide **course** curriculum by asking students questions on pacing, the need for clarification, and the like.

Selection of Pool Manager link 1662 can be selected to display... ..are logically linked, usually by subject matter, so that an instructor may draw from a pool to obtain existing questions and answers sets from other **courses**, instructors, semesters, etc., and not have to "recreate the wheel" every time they generate or modify a test. By clicking the Add Pool button, the... ..assessment manager.

Selection of Gradebook link 1664 displays a web page that enables the instructor to perform various functions with respect to the on-line **course** gradebook. FIG. 22 illustrates a web page for a **course** gradebook 2200, which provides a variety of information including consolidated grades, individual assignment/test scores, direct access to specific assignments or tests by student, or... ..to view only items in the Exam category. Finally, link 2218 can be used allow an instructor to filter users by last name.

Selection of **Course** Statistics link 1666 in the assessment area displays a web page that enables the instructor to set parameters and view certain statistics for their **course**. Some instructors may want to analyze their class by how much their on-line **materials** are being accessed, but very few have the opportunity to take the time or the effort to determine these numbers. By using the **course** statistics web page 2300 shown in FIGs. 23A and 23B, the system provides a rich tool set for instructors to evaluate the relative

statistics of their **courses**. These statistics may be valuable for evaluating on-line versus non-on-line **courses** to determine the relative efficacy of on-line **materials** and how they are enhancing the **course**. The **Course Statistics** web page has input fields for selecting a report filter, which will yield a report with Overall Summary of **Course Usage**, Main **Content Areas** report, Communication Areas Report, Group Areas Report, or Student Areas Report. A time period must be specified, which may be all dates or between...  
...mail to an administrative contact.

#### Administrator Functionality

The System Admin tab 2401 provides various portal areas where a system administrator can perform various administrative functions. **Courses** area 2414 permits an administrator to perform various operations with regard to a **course**. List / Modify **Courses** 2402 permits searching by a **Course ID** (or a few characters e.g., MEDI), Instructor (by User id or Name) or a key word in the Title or **Course Description**. Once created by using link 2436, **courses** can also be modified by using link 2402.

Create **Course** link 2436 permits a **course** to be created. A Create **Course** web page 2900 is shown in FIG. 29. The administrator will enter the requested information about the desired **course**; e.g., the **course** name, and ID, and a textual description on the web page. The administrator can then specify properties of the buttons that will be used along with the **course** to match his aesthetic concerns. The administrator can then specify various options, such as the subject area of the **course**, whether guests may access the **course**, if the **course** is currently available, if a **course** cartridge may be obtained and its URL and access key, and the instructor ID for the **course**.

Batch Create **Courses** link 2404 allows an administrator to add large numbers of **courses**.

Using a batch file, **courses** are entered into system I 00 quickly and without having to go through the Create **Course** 2436 link to add each **course**. Similarly, Batch Enroll Users in a **Course** link 2406 allows an administrator enroll large numbers of users into one or more **courses**.

Remove **Course** link 2408 allows an administrator to remove a **course** from system I 00. Copy **Course** link 2410 creates a new **course** from an existing **course**. This link is useful when creating a new **course** that covers much of the same **material** or if the same **course** is offered under different **Course IDs**. An administrator may choose which **course** areas to copy, so not all **course materials** need to transfer to the new **course**. Import **Course** link 2412 can be used to insert packaged **course materials** into a new **course**.

Administrators create archive files, optionally saved in ZEP format, from the Export **Course** link 2416 permits archived **course materials** to be imported to an existing **course**.

Exporting a **course** does not remove the **course** from system I 00. The Archive **Course** link 2418 can be used to create a record of a **course**, optionally including user interactions. A **course** can be archived to recall student performance or interactions at later time. The archive can be saved as a ZIP file.

Restore **Course** link 2420 permits the archived **course** to be restored to its pre-archived condition.

Settings link 2422 may lead to a menu of functions (not shown) that may be used to define parameters for all the **courses** on system 100. Images and Icons link 2424 permits an icon theme to be selected.

Catalog link 2426 can be activated to bring up a list of **courses** offered in a particular subject area of discipline.

Organizations area 2428- provides functionality and links very similar to those provided in **Courses** area 2414. Organizations area 2428 may hold **content** and tools for institutional communities outside the scope of academic learning or training. Clubs, sports teams, and service organizations are all examples of communities that... ..be used in connection with Organizations area 2428.

Users area 2432 provides a list / modify, create and batch processing capabilities similar to those provided for **Courses** area. For example, Create User link 2433 can take an administrator to a web page such as shown in FIGs. 30A and 30B, which enables... ..may be given an administrative access level at this point by selecting the appropriate option that is available, such as, None, System Admin, System Support, **Course** Creator, Account Admin). The role of the user will determine the access and control of the system that the user will have as explained throughout... ..of user data in predefined formats compatible with the system), Batch Enroll Users, which will cause the importing of a file to enroll users in **courses** and clubs that exist in the system), and Batch Remove Users, which will cause the importing of a file to remove users from the system).

In addition, Observer Management link 2434 permits users having a role of an observer to be managed. Observers are users who can view the same **content** as a user, but cannot modify or interact with **content**. The observer role can be used to let parents of a student or an academic advisor monitor progress.

Portal area 2437 allows an administrator to... ..2446 allows an administrator to monitor or review system usage. For example, a standard report can be provided that provides information on the number of **courses**, number of users, overall usage, and cumulative hits. An advanced reporting capability can also be provided that enables institutions to use data from predefined fields... ..Announcements page, such as shown in FIG. 5.

Messages posted from the Announcements function on the can also optionally appear in an Announcements section of **course** Web sites, such as shown in FIG. 5 at 510. Institution Calendar link 2456 allows an administrator to manage institution events through an... ..to pass data to URLs requiring that data in a query string. For example, with system 100, the last portion of a URLs for a **course** can be /bin/common/**course.pl?course-id=** , where the is a variable that may be passed using the context passing APIs. Context passing is useful when implementing system 100 extensions that require **content** from 15 system 100 to generate a URL. Base64Encoding

can be used. For enhanced security, CryptiXTM may be used to protect the transfer of...  
...sees when accessing system 100. An exemplary gateway page will allow a user top  
login to system 100, and optionally direct the user to a **course** catalog (such as shown  
in FIG. 6 at 612),

Assistance area 2479 can be used by users to gain access to support services or  
information... ..in a single view, as shown in FIG. 27. The calendar utility gives students  
and teachers access to all calendar events for each of the **courses** they are enrolled in, as  
well as institutional calendar events.



Since e-mail is a popular application on the Internet today, and the leading reason... ..00  
and 3200 that can be accessed by tab 3102 to provide links that allow students and  
teachers to find and access academic resources and **content**. These resources are also  
context-sensitive to the **course** discipline. For example, if one accesses the academic web  
resources from an accounting **course**, he/she is automatically directed to news and  
information sources that are relevant to accounting. The user has access to news, web  
links, reference WO... ..used as an open platform environment, where anyone with  
access to the Internet may register as an instructor to create, administer, and make  
available a **course** to anyone else with Internet access. Thus, by entering a publicly  
available web-site such as www.blackboard.com, a user may register as an instructor and  
be provided with an instructor control panel for creating **course** as described herein. To  
create the **course**, the user will define **course** parameters, such as a description,  
enrollment options, announcements, assessments, and **course materials**, etc., and provide  
them in the various web pages as described above. The user can then let others know  
about the availability of the **course** on-line, and a potential student may access the  
publicly available web site to enroll in the **course**. In this manner, anyone can create a  
virtual classroom without the need to be affiliated with an institution, and disseminate  
knowledge through the **course** as previously unavailable.

#### Semi-Structured **Content**, and Flexible Text Handlers

FIG. 39 shows an exemplary text editor 3900 that can be used in connection with the  
present invention. Text editor 3900 can be used by an instructor, for example, to add  
**content** to a **course**, as indicated at pulldown menu 3910. **Course** Documents shown at  
pulldown menu 3910 can correspond to **Course** Documents button 1078 shown in FIG.  
10. At field 391.2, a user, such as an instructor, can also optionally specify his/her own  
name for **content** that is to be added.

In operation, a user can type in ASCH text, such as "This is an equation placeholder", as  
shown in FIG... ..box 3916 of FIG. 42, the "to additional data. Here is a custom text  
object:" is also entered by a user. The data associated with "**content**-block(some-id, type-  
spec)" can be raw data, such as equation 4002, associated with a text tool 3902, 3904 that  
can be stored for run-time resolution and displayed to the user. There may be one or more  
raw data blocks that correspond to, or are associated with a "**content**-block." When a user  
submits, for example, an HTML web form, presentation data can be queried from each  
provider on one or more servers because each "**content**-block(some-id, type-spec)" can  
represent an identifier that can be generated by text editor 3900. "some-id" can represent  
a pointer to the...Equation Editor 4000, physically resides, such as a file location. Text

tools 3902 and/or 3904 can also use a syntax, structure or format other than "**content-block**(some-id, typespec)" to achieve the stated objectives and still be within the scope of the present invention.

The contents of template 3916 shown... ..additional data. Here is a custom text object:   
The " @ X @ **content-block**(some-id, type spec) @ X @ " shown in FIG. 42 corresponds to  
the " 

**Dialog eLink:** Order File History  
7/K/41 (Item 3 from file: 349)  
DIALOG(R)File 349: PCT FULLTEXT  
(c) 2009 WIPO/Thomson. All rights reserved.

	Country	Number	Kind	Date
Patent				19

### Detailed Description:

...a manner of updating and maintaining a restricted access site to which access is provided via the present invention.

The process includes regularly or periodically **updating** the site with new **material**, and deleting **material** after it has been posted for a set period of time. As this process is continuously utilized, visitors will be interested as new **material** appears on the site, and will be motivated to purchase additional access to the site.

[0017] Other features and advantages of the invention will be... ..with that particular product and then take an interest in the online version which is related to that product. Access may be provided to webcasts, **audio** or video streams, rebroadcasts of shows, online magazines, etc.

[0054] One embodiment of the invention is a DVD box 30. The DVD box 30 has... ..30, preferably inside the box 30. In one preferred embodiment, the access code 20 enables the consumer to access a restricted access site containing video **material** or movies for viewing or downloading. Optionally, the consumer is enabled to download a limited number of video products.

[0055] While any suitable mode of... ..embodiment, the access code 20 may be applied to an adhesive label 50 which is adhered to a surface of the packaging.

[0057] Additional advertising **material** may be present within the packaging. Also the particular product or a portion thereof may also be included within the packaging.

[0058] In any of the embodiments herein, the access code 20 is optionally veiled by scratch-off **material** 60.

[0059] In one embodiment, the packaging is a CD case 70 or "jewel" case.

Optionally, the CD case does not contain a CD product. Preferably, the consumer is enabled to download or **listen** to an **audio** product such as a music product. In another preferred embodiment, the consumer is enabled to download a custom music product by selecting a plurality of... ..consumer rather than a packaged set of selections. This can be done via NIP3 technology or any other suitable means for downloading and saving or **listening** to musical selections. The musical selections could be in the form of a webcast or **audio** stream.

[0060] In another preferred embodiment, the packaging is a software box 80.

Preferably no software product is contained within the software box 80. The... ..embodiment which contains software products which can be downloaded or otherwise utilized by the consumer.

[0061] In a further preferred embodiment, the packaging is an **audio** cassette case 90. 1 0 Preferably, no cassette product is contained within the cassette box 90. Preferably, the consumer is enabled to download or **listen** to an **audio** product such as a music product. hi another preferred embodiment, the consumer is enabled to download a custom music product by selecting a plurality of... ..than a 1 5 packaged set of selections. This can be done via NIP3 technology or any other suitable means for downloading and saving or **listening** to musical selections.

[0062] In still a further preferred embodiment, the packaging is a language education case 1 00 such as would normally hold a program for language instruction which might be software, **audio** or video recordings, or text. Preferably, no such product is contained within the case 100. Preferably, the access code 20 enables the user to access... ..of the invention enables the user to download or access a fixed number of items. These items could be musical selections, software products, video products, **audio** products, or online text products.

[0065] In yet a fiu-ther embodiment, a package includes an outer cover having the appearance of a cover for a printed **material** product, and an access code 20 packaged in conjunction with the outer cover 130. The access code 20 enables a consumer to access a 9... ..appearance of a magazine cover 140. The cover 140 may contain no interior pages or may contain one or more interior pages 150. Optionally, advertising **material** 160 may be included within the magazine cover 140. The package IO is preferably sold at a magazine stand in a retail store, and is optionally contained within shrink wrap type packaging 170 to protect its **content** from **view prior** to purchase. In this embodiment, the **access** code 20 preferably provides **access** to an online magazine. Ideally, the online magazine would relate directly to subject matter 0 referenced on the cover 140. The code 20 may provide... ..such as thirty days from first access. In another aspect of this embodiment, the restricted access site enables the consumer to access a webeast or **audio** or video stream which relates to subject matter contained on the outer cover 140. For

example, a magazine cover 140 might reference music of a particular type, and access may be given to an **audio** 5 stream or webcast of music of the same type.

[0067] In another aspect of this embodiment, the outer cover 130 has the appearance of a book cover 180. The cover 180 may contain no interior pages or may contain one or more interior pages. Optionally, advertising **material** may be included within the book cover 180. The package 10 is preferably sold at a book stand in a retail store, and is optionally contained within shrink wrap type packaging to protect its **content** from **view prior** to purchase. In this embodiment, the **access** code 20 preferably provides **access** to an online book. Ideally, the online book would relate directly to subject matter referenced on the cover 180. The code 20 may provide... ..step of periodically updating the site with a frequency which is at a faster rate than the limited set period of time, so that new **material** is added during the activation period provided by the access code 20. Preferably, **material** from the site which has been available on the site for a second period of time is deleted. For example, **material** which is as old as the set period of time could be deleted, such as in thirty days.

[0071] In another embodiment of the invention... ..Similarly, packaging in accordance with other embodiments of the invention may contain other types of media, such as a DVD, a video cassette or an **audio** cassette, or a high density magnetic disk medium (e.g., "ZIPTm" disk). The user downloads data (e.g., music, video, **audio**, text) from the restricted access web site onto the medium enclosed in the package). None of the above referenced examples should be construed to prohibit... ..data that are downloaded onto the CD or DVD, with access controlled by the PIN.

[0076] Some embodiments include a method of burning an encrypted **audio** file into a burnable CD or DVD that includes the PIN technology to control and direct download activity. A few specific examples of further variations include a package containing.

[0077] 1.) A CD-R that has been pre-written with an encrypted **audio** file that contains a PIN that controls download activity to the CD-R or another medium; [0078] 2.) A CD-RW that has been pre-written with an encrypted **audio** file that contains a PIN that controls download activity to the CD-RW or another medium;

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[0079] 3.) A DVD-R that has been pre-written with an encrypted **audio** file that contains a PIN that controls download activity to the DVD-R or another medium; or [0080] 4.) A DVD-RW that has been pre-written with an encrypted **audio** file that contains a PIN that controls download activity to the DVD-RW or another medium.

[0081] Each of the above examples can be enclosed...

## Claims:

...any previous claim, wherein said packaging is a box sized and shaped to house one of the group consisting of a CD, a DVD, an **audio** cassette, a video cassette, and a medium

used to store software.

8 The internet access package according to any previous claim, wherein said access code... ..inside surface of said package.

j

11 The internet access package according to any previous claim, wherein said access code is veiled via scratch-off **material**.

12 The internet access package according to any previous claim, wherein said restricted access site enables the user to download or view a video product.

13 The internet access package according to any previous claim, wherein said restricted access site enables the user to download or hear an **audio** product or download or view a video product.

14 The internet access package according to claim 13, wherein said restricted access site enables the user to download or hear an **audio** music product.

15 The internet access package according to claim 14, wherein said restricted access site enables the user to download a custom music product... ..the user to download a software product.

17 The internet access package according to any previous claim 1, wherein said packaging is a foreign language **education** case.

18 The **internet** access package according to claim 17, wherein said restricted access site enables the user to download or access a foreign language **education** product.

19 The **internet** access package according to claim 1, wherein said access code is disposed on an adhesive label which is adhered to an insert.

20 The internet... ..to access a webcast.

24 The internet access package according to any previous claim, wherein said restricted access site enables the user to access an **audio** or video stream.

25 The internet access package according to claim 24, wherein said stream is a rebroadcast of a program.

1 6. The internet... ..particular subject matter.

33 The internet access package according to claim 30, wherein said restricted access site enables the user to access a webcast or **audio** or video stream which relates to subject matter contained on said outer cover.

34 A method for providing access to a restricted access site on... ..steps

O f:periodically updating said site with a frequency which is at a faster rate than saidlimited set period of time, anddeleting **material** from said site which has been

available on said site for a second period of time.

36 A method for enabling the downloading of electronic... ..therein.

43 The internet access package according to claim 42, wherein the medium is one of the group consisting of a CD, a DVD, an **audio** cassette, a video cassette, and a medium used to store software. 1 5 44. The internet access package according to either claim 42 or 43...

**Dialog eLink:** [Order File History](#)

7/K/42 (Item 4 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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## INTERNET-BASED EDUCATION SUPPORT SYSTEM AND METHOD WITH MULTI-LANGUAGE CAPABILITY

	Country	Number	Kind	Date
Patent				19

### Detailed Description:

## INTERNET-BASED EDUCATION SUPPORT SYSTEM AND METHOD WITH MULTI-LANGUAGE CAPABILITY

### CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of U.S. Provisional Application No. 60... ..More specifically, the present invention relates to systems and methods in which an educational instructor interacts with one or more non-collocated students by transmitting **course** lectures,'textbooks, literature, and other **course materials**, receiving student questions and input, and conducting participatory class discussions using 5 an electronic network such as a Local Area Network (LAN), a Metropolitan Area... ..Wide Web (WWW'). The present invention also relates to the provision of an infrastructure that allows for on-line registration and tuition payment of educational **courses**.

In addition, the present invention relates to systems and methods that may be used by system users at various levels for the distribution and use... ..by geography. In most instances, a potential student must physically move to within commuting distance or onto a campus in order to have access to **course** instructors, classes, and **materials**.

Furthermore, potential students and persons seeking knowledge of all sorts are generally limited to proximate sources of **courses** of instruction, tutoring, or training. Due to these limitations, a prospective student must either seek to learn a given subject from whatever local means of... ..education or training. Using this electronic medium, students and instructors are able to exchange information including live or transcribed classroom

lectures, homework assignments, texts and **materials**, grading, live or transcribed question and answer interaction sessions, and other related information to effect a traditional learning or educational experience regardless of physical location... ..would be required to further attain technological knowledge necessary to effectively use the Internet to educate non-collocated students.

Furthermore, the complexity of using the **Internet** for **educational** purposes is compounded as the number of user choices required at the user interface increases because not only must the instructor and students acquire technological... ..of the medium for educational purposes.

The exception has been so-called virtual schools. Virtual schools traditionally charge an enrollment fee, and then offer free **courses**. In lieu of paying for each **course** taken, a student is subjected to advertising while viewing on-line **course material**. While such billing and income generation methods may be acceptable for companies providing on-line training, such methods are inconsistent with traditional college and university billing practices. Colleges and universities typically charge a low enrollment fee and bill students on a per-credit or per **course** basis.

There are interactive systems currently being marketed for distributing and using information over a network that permit activities by system users according to the... ..area of educational or corporate training systems. In such systems, system users, entities providing instruction, and system providers will interact with the system so that **content** may be provided to the student or person receiving training over the network. As stated, the student or person receiving training may be located at... ..WAN, intranet, the Internet, or WWW-based system being used as the networking medium for providers, instructors, and entities receiving instruction. This also permitted the **course** of instruction to accommodate disparate sources of information that in the past could not be included in the **course** of instruction. Moreover, this model permitted classes of instruction to vary widely in make up. For example, a class may include a number of individuals... ..instructor may be located with one of the groups of students. It may further include the instructor and students located in one location and the **materials** being used for instruction being provided only over the network system because of the rarity of the source **material**.

The networked systems that have just been described from a conceptual view are very attractive. However, once they are viewed from the practical, user-based... ..systems have difficulty presenting multiple functions on-line activities because of the complexity. For example, there are problems in providing on-line registration for educational **courses** along with providing tuition payments. This is due in part to the incompatibility of billing practices and the continual customization of the integration of the registration for **courses** and payment techniques.

Current educational and company-based systems have difficulty being provided in various languages. Typically, in order to obtain a system that will... ..In accordance with these and other objects, provided is a system for providing to a community of users

access to a plurality of on-line **courses**, comprising a plurality of user computers and a server computer in communication with each of the user computers over a network that includes LANs, MANs... ..the system having predefined characteristics indicative of a predetermined access level to the system. Each level of access to data files is associated with a **course**, and a level of control over data files associated with a **course**. The preferred server computer is capable of storing data files associated with a **course** assigning a level of access to each file, determining an access level of a user requesting access to a file, and allowing access to a file associated with a **course** as a function of the access level of the user. Accordingly, the level of access preferably is associated with the ability of a user to... ..user, and an administrator level is associated with an administrator user. However, multiple levels may be associated particular users.

For example an instructor of one **course** may also be a student in another **course**.

The instructor user is provided with an access level to enable the creation and editing of a plurality of **course** files associated with a **course**. The **course** files may include an announcement file, a **course** information file, a staff information file, a **course** documents file, an assignments file, a dropbox file, an asynchronous communication file, and a synchronous communication file.

The student user is provided with an access level to enable reading of **course** files associated with a **course**. The student user is also provided with an access level to enable modification of some of the files associated with a **course**. Also, the user may be provided with an access level to enable creation of a student file associated with a file for which the student... ..aval I reviewing a number of student files, and the collated grades may be made available on-line to all student users associated with the **course**.

The "digital dropbox" may contain a plurality of files transferred to the server computer from one or more student users associated with the **course**. The instructor user may be provided with access to the files in the dropbox file. The instructor user may download, edit and upload the files in the dropbox.

A user may be required to enter a logon sequence into a user computer in order to be provided with access to **course** files associated with that user. The user is then provided with **access** to all **courses** with which the he/she is associated **after** entry of the logon sequence. The user is provided with a web page that may include a plurality of **course** hyperlinks. These **course** hyperlinks preferably will be associated with each **course** that the user has been enrolled either as an instructor or as a student. Selection of a **course** hyperlink will provide the user with a web page associated with the selected **course**. This web page will have **content** hyperlinks and buttons to various **content** areas associated with the **course**. The **content** hyperlinks and/or buttons may include, for example, an announcement area hyperlink, a **course** information hyperlink, a staff information hyperfink, a **course** documents hyperlink, an assignments hyperlink, a communications hyperlink, and a student tools hyperlink.

Selection of the announcement area hyperlink provides a web page including a group of **course** announcements. Selection of the **course** information hyperlink provides a web page including information regarding the associated **course**. Selection of the staff information hyperlink provides a web page including data regarding the instructors of the associated **course**. Selection of the **course** documents hyperlink provides a web page including a listing of documents associated with the **course**, which may be active hyperlinks to the documents. Selection of the assignments hyperlink provides a web page including a group of **course** assignments. Selection of the communications hyperlink provides a web page including hyperlinks to a group of communication tools including an asynchronous communication tool and a synchronous communication tool.

In another aspect of the present invention, the system and method provide a community of users access to on-line **courses** that will include a server computer in communication with user computers over a network. The server computer preferably will be capable of creating **course** user accounts from a file of existing user accounts associated with an external computer. In this manner, existing legacy systems that have a large number...

...to as "batch enrollment."

The present invention also includes a method for providing on-line education that further may include the steps of establishing a **course** to be offered on-line, offering the **course** to be taken on-line to a group of student users, and providing access over the network to the **course** files to student users who have enrolled in the **course**. The establishment of the **course** includes an instructor user generating a set of **course** files for use in teaching the **course**, then transferring the **course** files to a server computer for storage. The stored files will be accessible by a predefined community of student users having access to the server computer over a network.

Preferably, at least one of the **course** files may include a **course** assignment. The student user creates a student file in response to the **course** assignment and transfers the student file to the server computer. The instructor user accesses the student file from the server computer, reviews the student file to determine compliance with the **course** assignment, and assigns a grade to the student file as a function of the determination of compliance with the **course** assignment. The instructor user also may post the grade to a file on the server computer accessible only by the student user with which the grade is associated. The instructor user may repeat this process for a number of student users that are enrolled in a **course**, and then perform a statistical analysis on the grades assigned to the student users.

The results of the statistical analysis may be made available to the student users enrolled in the **course**.

An asynchronous communication tool accessible to student users enrolled in the **course** may be provided for enabling asynchronous communication amongst the student users. Likewise, a synchronous communication tool accessible to student users enrolled in the **course** may be provided for enabling synchronous communication amongst the student users.

The present invention also provides a flexible infrastructure for colleges, universities, and other institutions... ..present invention may be configured as an open system to which anyone can connect to a server over the Internet or WWW, and create a **course** on-line that may be taken by anyone else connected over the network. Thus, anyone may create a virtual classroom available to anyone else, regardless of whether they are affiliated with a particular institution. For example, a lawyer may create a **course** in patent law on-line, and configure the system to require entry of a password to enroll. The lawyer may then disseminate the passwords to students who desire to enroll in the **course**.

Alternately, the lawyer can request the system to require payment to enroll in the **course**, such as by credit card.

In an embodiment of the invention, the system is capable of storing and displaying multiple locales, including a locale precedence that permits the locale to be displayed in a hierarchy. The present invention can display **course materials** in a specific locale, for example, to teach a foreign language **course** and/or to teach a **course** in a foreign language. Similarly, the present invention can be used to serve organizations that have a diverse user populations that require **courses** in multiple locales.

In another embodiment of the invention, the system can be operated to use and display information in multiple languages and even display **content** at different locations of a web page in different languages,

The system and method of the present invention will be described in further detail in... ..present invention that a user will view.

FIG. 6 is a screen shot of a web page according to the present invention that show the **course** list and **course** catalog available to student users.

FIG. 7 is a screen shot of a default view for a **course** web site according to the present invention.

FIG. 8 is a screen shot of an announcement web page provided to a student user according to the present invention.

FIG. 9 is a screen shot of a **course** contents window according to the present invention.

FIG. 10 is a screen shot of an assignment web page according to the present invention.

FIG. 11 is a screen shot of a **course** documents web page according to the present invention.

FIG. 12 is a screen shot of a communication center's web page according to the present... ..FIG. 17 is a screen shot of a second announcement web page according to the present invention.

FIG. 18 is a screen shot of a **course** information web page according to the present invention.

FIG. 19 is a screen shot of a **course** tasks web page according to the present invention.

FIG. 20 is a screen shot of an instructor library web page according to the present invention.

FIG. 21 is a screen shot of a digital dropbox web page according to the present invention.

FIG. 22 is a screen shot of a **course** gradebook web page according to the present invention.

FIGs. 23A and 23B are screen shots of the **course** statistics web page according to the present invention.

FIG. 24 is a screen shot of an advanced **course** and portal manager web page according to the present invention.

FIG. 25 is a screen shot of a community web page according to the present... ..28 is a screen shot of an email web page according to the present invention.

FIG. 29 is a screen shot of a create a **course** web page according to the present invention.

FIGs. 30A and 30B are screen shots of create user web pages according to the present invention.

FIG. 31... ..is a screen shot of the virtual chat web page according to the present invention.

FIG. 34 is a diagram showing information passed from a **course** registration server to a payment server according to the present invention.

FIG. 35 is a sample of a payment form according to the present invention... ..can specify a default locale according to the present invention.

FIG. 41 shows an exemplary screen display directed to how a system administrator and/or **course** instructor and/or other individual having privileges can specify a **course** locale according to the present invention.

FIG. 42 shows an exemplary browser display environment according to the present invention.

FIG. 43 shows a first exemplary **course** navigation screen display with a mandatory locale according to the present invention.

FIG. 44 shows a second exemplary **course** navigation screen display without a mandatory locale in-part with a multiple language according to the present invention.

FIG. 45 shows an exemplary flow diagram... ..OF THE INVENTION

#### General System Architecture

Referring to FIG. 1A, generally at 50, the present invention comprises a system and methods for the exchange of **course content** and related information between non-collocated instructor users and student or trainee users. An instructor user, such as at 52, 54, interacts with one or... ..noncollocated student or trainee users, such as at 56, 58, 60, by using the system and methods of the present invention to, without limitation, transmit **course** files including **course** lectures, textbooks, literature, and other **course materials**, receive student questions and input, and conduct participatory class discussions using an electronic network such as a LAN, a MAN, a WAN, the Internet and/or the WWW, of which 62 is representative. Access to the **course** file is controlled by access levels assigned to...1002 will permit the system user to access, interact with, and retrieve information. For example, user interface layer 1002 can generally be used to create, **revise**, and/or delete **content** from system 1000. In particular, at user interface layer 1002, system 1000 can generate, access, retrieve and/or receive hypertext mark-up language (HTML... ..be implemented as object-oriented code, organized around concepts that "map" to real world objects. In an educational context, real world objects can be a **course**, identification of the **course**, the date(s) of the **course**, and/or a description of the **course**.

Persistence classes 1018 can be used to store data in database 1020. As shown, plug-in manager 1014 can utilize persistence classes 10... ..can also be utilized and associated with database 1052. Although FIG. 24 shows that there are six portal modules, i.e., "My Institution" tab 2422, "**Course**" tab 2424, "Academic Web" tab, "Community" tab 2426, "Services" tab 2428, and "The Web" tab 2429, in Portal Areas 2406, system 1000 may include other numbers of portal modules.

Preferably, Chameleon 1058 is a Java-based import/export utility that can translate a **course** created on one server 1040 to an intermediate format such as an 11

4S **Content** & Packaging format (11

4S Global Learning Consortium, Burlington, MA) which can be XML 1060 format, so it can be exported to another server (not shown... ..database subsystem 140, and core subsystems 150.

Web host server 130 further includes a shell service 131. Applications subsystems 110 further includes a **content** registry 111, a tool registry 112, a **course** registry 113, one or more **content** engines 114, one or more tool engines 115, and one or more **course** engines 116. Core subsystems 150 further includes a core engine 151, an access manager 152, a user interface (UI) manager 153... ..Protocol (FTP) to the user via web browser 120 running on a standard computing platform such as a personal computer or one or more **courses** associated with that user.

Engines 301 include, but are not limited to, **content** engine(s) II 4, tool engine(s) I 15, **course** engine(s) I 16, and core engine 15 1. Registries 302 include, but are not limited to, **content** registry I I 1, tool registry I 12, and **course** registry I 1 3. **Course** engine(s) I 16 creates a **course** by associating a set of educational **materials** to which a student user has access, by organizing references to these informational items as contained in **content** registry I I 1. **Course** engine(s) I 16 queries **content** registry I I I for an index of **content** engine I 14 associated with a particular resource being requested by a user.

**Content** engine(s) I I I includes an assessment engine that generates quizzes to assist and instruct users in the use of education support system I... ..example, one such quiz provided by an assessment engine of education support system 100 provides step-by-step instructions to an instructor for building a **course**. The quiz is then administered on-line to the instructor to allow him to build a customized **course** to be provided using education support system 100.

Unlike **content** engines I I 1, which represent actual **course content**, tool engine (s) I 15 generally includes installable programs that provide capabilities available for use with a plurality of **courses** and not permanently associated with any particular **course** or **courses**.

Instructors have different modes of teaching. Further, the same instructor may emphasize different modes of teaching depending upon the subject being taught. For example, some... ..a variety of teaching methods. By invoking a particular set of tool engines 115 during interaction with the assessment engine, an instructor can customize a **course** offering to conform to his/her preferred mode of teaching. An example of a tool engine H 5 is a chat/whiteboard communication tools (synchronous and/or asynchronous) provided by education support system 1.00 that allows for student group interaction and collaboration associated with a given **course**. Other tools include, but are not limited to, announcements for broadcast of group oriented messaging, a calendar mechanism for storing date related events and information... ..group pages, and email services. Further capabilities provided by education support system 100 include, but are not limited to.

- G) a catalog listing of all **courses** available,
- (ii) a method for student users to enroll in either open enrollment or closed enrollment situations,
- (iii) a method for **course** creation including **course** templates and **course** themes, a **course**/page editor and viewer, a site page editor and viewer,
- (iv) a method for making and disseminating announcements, a calendar function, a chat board in... ..free form information using, for example, Microsoft Paint™,
- (v) a method for sending email between instructors and students and groups of students, a list of **course** members and links to their web pages, a list of groups and links to their web pages, a file sharing area, means for providing assignments to student users,
- (vi) a method for conducting a variety of types of student assessments (e.g., testing), (vii)

a method for providing lesson **material** in sequential format, means for adding and removing users, help documents, maintaining a grade book and progress tracking, links to personal web pages or home pages, and a resource library containing references to all uploaded **content**.

**Course** templates allow instructors to easily reuse a **course** structure for subsequent **courses**.

**Course** themes allow the instructor to affect the look and feel of the **course** site.

Referring to FIG. 4, a preferred embodiment of education support system 100 supports a plurality of environments 400 in a single application. Examples... ..defined by a four-frame page is shown in FIG. 4. The environment includes console navbar 401, and console top 402, a toolbar 403, and **content** 404. Console navbar 401 and console top 402 may be controlled by a console frameset, while toolbar 403 and **content** 404 may be controlled by a separate frameset. For example, toolbar 403 "buttons" are generally located in the top frame of an application area. This approach allows users, and especially instructors, the ability to customize their **course** offerings while conforming to consistent user interface features that allow application areas to be shared across environments 400. Student users and instructors interact with education... ..facilitates integration of education support system 100 with existing or legacy network-based systems, including proprietary institutional electronic networks and systems related to grades, registration, **course** schedules, financial aid, etc., without requiring modifications to existing systems or security procedures.

According to an embodiment of the present invention, application subsystems I 10... ..formats for the HTML formatted file.

Education support system 100 supports a variety of business model. For example, an institution may charge each student for **courses** taken via education support system 100, or an instructor may use education support system 100 to process individual student tuition payments by providing links to... ..Tier Embodiment

The embodiment in FIG. 1C is a three-tier structure. The "first tier" functionality that incorporates the basic system, referred to as the **Course Manager**. The **Course Manager** provides **course** management system tools to enable instructors to provide their students with **course materials**, discussion boards, virtual chat, on-line assessments, and a dedicated academic resource center on the Web. As explained further below, the **Course Manager** includes personal information management tools, **course content** management tools, **course** communication and collaboration tools, assessment tools, academic Web resources, **course** management tools, and system management tools.

The "second tier" can incorporate all of the functionality of the basic embodiment in an epicentric or portal model, also known as the **Course & Portal Manager**. The second tier provides customized institution-wide portals for faculty, students, staff, and alumni with access to numerous personalized news and information... ..tasks. It also allows for a central access point to all of the institution's on-line services. In addition to the features of

the **Course** Manager, the **Course & Portal Manager** includes enterprise database support, customizable portal modules and information services, web-based e-mail system, community management, institutional services management, extended customization for institutional branding, institution-wide **content** sharing and management, and **course** e-commerce management.

The "third tier" can be called the Advanced **Course & Portal Manager**. This tier incorporates the complete end-to-end "e-Learning" solution. In addition to the **Course** and Portal Manager, this third tier provides advanced Java-based APIs for unifying diverse on-line campus systems into one integrated platform allowing for user... ..that may be accessed by anyone, whether they are affiliated with an institution or not. In this embodiment, anyone on the web can create a **course**, or enroll in a public **course** as explained subsequently. This provides for widespread dissemination of tools and utilities that enable anyone to generate his own **course** that can be taken by virtually any student.

The **course** management tools of the present invention allow instructors to monitor, control and customize their **course** web sites from a web browser interface. The **Course** Control Panel provides a robust and easy-to-use interface for such **course** management. The system allows instructors to customize the names of **course** web site navigation buttons to suit their needs and requirements. The system also allows the instructor to add or drop individuals or groups of students from a **course** as required. The system features extended student enrollment option, such as a limited-time self-enrollment, e.g., certain dates only for the self-enroll feature, password-protected enrollment, and defined **course** duration. This will allow self-paced study. **Courses** may be recycled between academic terms by automatically resetting discussion boards, assessment, and other **content** .9

areas. In addition, the instructor can track student progress, grades and **content** usage through the system.

As further explained herein, the **content** management tools featured in the present invention allow instructors to post **course** documents, staff information, and assignments. Text may be typed directly into a form, or existing files may be accessed and uploaded automatically. Documents, such as word processing files, spreadsheets, slide presentations, graphics, **audio** and video clips, may be uploaded in this manner. Streaming multimedia may be provided interactivity between the student and the **course**. Pop-up maps provide easy **course** site navigation that enriches the teaching and learning experiences.

The communication and collaboration tools enhance the interaction between the students and instructors with asynchronous discussion... ..the assessments and student answers.

The personal information management tools in the present invention allow students, instructors, administrators and all other users to access basic **course**, personal, and institutional data through a user-centric "My Institution" screen. The user may view announcements from multiple **courses** in one central location, and maintain personal calendar, address book, user directory and to-do lists.

The present invention also provides for access to a... ..of academic resources that supplement the student's on-line education experience. The user may browse discipline-specific information, resources, and communities linked to each **course** web-site. These academic resources may be customized and personalized to fit the users' needs.

The system management tools available with the present invention allow... ..disable features for numerous user access levels. Batch user enrollment and unenrollment may be performed system wide. Preferences and options may be managed on multiple **courses** from within a central system administrator panel. The system administrator may (1) track and report faculty, student, and **course** statistics, (ii) plan and manage system hardware requirements by assigning instructors with pre-assigned disk quotas for **content** storage, and (iii) employ system-wide announcements to broadcast messages to users about system maintenance or institutional announcements.

In the **Course & Portal Manager** embodiment, enterprise database support provides support for tens of thousands of users across an entire institution or network of institutions. User and **course** data may be managed efficiently and effectively. Moreover, large volumes of transactions may be managed efficiently and effectively. The "My Institution" interface includes portal and community functionality along with quick access to web email, **course** and institutional announcements, and links to other campus departments. Administrators may enable or disable portal modules and establish required and optional modules from the portal options menu bar. Administrators may also assign different portal default settings to different user access levels, e.g. students get different portals than instructors.

**Course** e-commerce management functionality allows institutions to set prices and charge fees for **course** enrollment directly through the "e-Learning" platform.

In the Advanced **Course & Portal Manager** embodiment, the snapshot user management tool allows scheduling of one-time or periodic (e.g., hourly, daily, weekly) data integration from existing student information systems, automating **course** population and keeping the "e-Learning" environment is synchronized with administrative and student data. Moreover, the end-user authentication enables a single logon environment for... ..5 would display the name of the institution that has licensed the product. The home page also provides the user with direct access to personal, **course**, and institutional tools. As an added feature, the system enables each user to select from a large number of news and information services, so that... ..All of this functionality is provided in one place, the home page, so that the institution can provide a sense of community on campus, with **courses**, and with a view to the external information sources.

By selecting the "**Courses**" tab 502, the user will be linked to a **Course** page 600 as shown in FIG. 6. **Course** page 600 provides direct links to the **courses** that they teach (602, 604) and/or are enrolled in (606, 608, 610). To access the **course** web-site, the user will click on the **course** title, such as at 602, 604, 606, 608 or 610, and he/she will be automatically linked to a web page associated with that **course**. The user also has the

opportunity to browse the **course** catalog 612 by selecting the links on the right side of the page 600, where **courses** are listed according to category. The user may also search through the **course** search engine by selecting the Browse **Course** Catalog Link 614.

For example, by selecting the link 602 for the Introduction to Music **course**, which the user in this example is teaching, the user is shown the web page 700 illustrated in FIG. 7. The default view for the **course** web site 700 in this embodiment is the Announcements page 702, as shown in FIGs. 7 and 8. As seen at the lower part of... ..has left that page by simply clicking the Announcements button 804 on the navigation toolbar 806 on the left of the web page.

Within the **course** web-site environment, the user is able to access all of the relevant **course material** and communication features as shown herein. The entire **course** outline may be displayed in a separate browser window 900, as shown in FIG. 9. At the browser window, the **course** contents are available for perusal and hyperlinking as desired. FIG. 8 shows the entire web page for Introduction to Music in two parts: an upper part and a lower part, which is scrollable as desired. One of the function buttons provided is labeled "**Course Map**" 808, which upon being clicked will pop-up the **Course** Contents window 900. The user will be able to expand or collapse the various headings provided in order to drill down into the entire **course** contents as currently configured. So, for example, the user can expand the Assignments section 902 and get a linkable list of all the assignments that have been created for the **course** to date. Any of the assignments may then be clicked for easy access. This separate window 900 is especially advantageous since it allows users to browse the entire **course**, regardless of their current location in the web-site.

By selecting any of the Assignments links 902, the...would be linked to the web page 1070 set forth in FIG. 10. This web page lists each assignment that has been compiled for the **course**, each of which can be linked to web pages that contain the full details of the particular assignment. The assignment page 1070 shown in FIG. 10 may be viewed by clicking the "Assignments" button 804 on the toolbar at the left of the **course** home page shown in FIG. 8. In general, any of the functions that are provided by toolbar buttons on the navigation bar at the left of the **course** home page will be available in any page accessed for that site, so that easy navigation may be had and the user may jump around and visit any desired portion of the **course** web site no matter where the user is currently located. Likewise, the **Course** Contents window provides similar functionality as described above.

As shown in FIG. 10, folders that have quizzes and surveys may be linked to by viewing... ..disposal. For example, shown in FIG. 10 is a link 1072 to a multimedia presentation for "Physics in Music" that will give the student a **content**-enriched lesson that will be useful prior to the next lesson. Assignments may also be as simple as a text - based file that the student... ..in preparation for the required class session.

In addition to selecting the Assignments page 1070 or the Announcements page 700, the user may select the **Course** Information button 1074 on the toolbar. This will link the user to a web page that will list information provided by the instructor that is useful to the

student, such as an introductory welcome message or links to helpful resources. Resources otherwise found on other parts of the **course** web site may also be shown here if desired by the **course** web site developer. Links may be in the form of URLs to other web pages or resources or to folders that include groups of logically... ..link that be clicked to send an email. This gives the student with quick, easy access to any instructor as may be desired throughout the **course**. Images and other types of multimedia files may also be made available at this page for enhanced **content** viewing.

The user may select the "**Course Documents**" link 1078 shown in the navigational toolbar, after which the web page I I 00 on FIG. I I is provided for that **course**. This provides the user with immediate access to all documents relevant to the **course**. As a student, the user has access to all of the **course materials**, including additional links to information on the web that will enhance the instructional experience. As an instructor, the user has the ability to post documents... ..the Send E-Mail link 1202 loads a web page with various links that allow the user to send email to individuals registered for the **course**, or to students only, or to instructors only.

The email function is accomplished via web-based email and allows for users to send attachments, as... ..existing email packages available today. Selection of the Student Roster link 1204 displays a web page that lists all of the students registered for the **course**, along with contact information if allowed by the student, such as phone number, address, and email address. Selection of the Student Pages link 1206 provides... ..learn even more easily outside of regular class hours. It can also be used as an effective method for instructors and TAs to provide a **tutorial** tool for out-of class questions and discussions that need to be saved for the purpose of sharing with the rest of that class. This... ..on the Virtual Chat link 1 0, the student is provided with a web page 3300 as shown in FIG. 33, labeled "virtual chat". Each **course** has its unique chat area built into the **course** site. Students can engage in chats about the **course**, collaborate on assignments, and share information beyond the boundaries of the classroom or posted **materials**. The instructor can monitor the chats or actively engage in discussions. This real-time virtual chat is a feature that can also accommodate a whiteboard... ..is set by the system administrator.

Selection of the External Links button 1082 will display a web page that is provided with URLs for relevant **content** that the instructor deems may be useful to the student community. For example, in a law **course**, links may be provided to various legal research web sites, or a Congressional web page.

Selection of the Student Tools button 1084 will display a... ..that will allow control and access to the student's digital dropbox, that is a folder of files that the student can exchange with the **course** instructor. As shown in FIG. 15, dropbox web page 1500 allows the student to type in box 1502 the resource location of a file that... ..Selection of the Check Your Grades link 1406 will deliver a web page that shows the grades that the student has been assessed in the **course**, such as for exams, quizzes, term papers, projects, and assignments. The student may be able to link to the specific exam or paper through this... ..provide well known PIM (personal information management)

functionality to the student. The Calendar web page can display calendar events in a graphical display for that **course**, all the student's **courses**, all institution events, as well as personal calendar events programmed by the user. Different entities can program calendar events that can be selectively displayed by the student by selection of display functions on the page. For example, the instructor can program the calendar events for the **course**, and an administrator can program calendar events for the entire campus, and these will be displayed on the student's calendar since he is registered for the **course**. This provides the student with a greater ability to manage his calendar than has been available in the past.

The final button on the Student... ..The Resources button 1422 links directly to a web page of related on-line resources to assist with courserelated issues, as described further below. The **Course** Map button 808 gives a separate browser window with direct access to the **course** contents, as explained above. The My Blackboard button 1424 gives access to "My Blackboard" functionality as explained below. The Search button 1426 enables the user to search all **course materials** by criteria and keyword(s). The Logout button 1428 logs the user out of the current **course**. There may also be an Enroll in this **Course** button to allow students to register themselves in **courses**. Preferably, this button is only visible when the student accesses as a guest a **course** in which he is not enrolled.

#### Instructor Functionality

The instructor is provided with essentially the same functionality and control as is the student user, with additional functions defined herein. The instructor is provided with a complete set of navigational buttons for accessing announcements, **course** information, staff information, **course** documents, assignments, communication tools, external links, and student tools for a given **course** that he/she is teaching. The control panel also is given to the instructor to enable display of a set of links to **course** management and development tools that are available to an instructor, An exemplary instructor's control panel web page 1600 is shown in FIG. 16. This control panel 1602 provides the instructor with many features that are useful in managing the **course** he/she instructs. The control panel is divided into **Content** Areas 1604, **Course** Tools 1606, **Course** Options 1608, User Management 1610, Assessment 1612, and Assistance 1614, as described in detail subsequently below.

#### **Content** Areas

The Announcement link 1616 displays a web page 1700 as shown in FIG. 17 that will set forth all of the announcements that have been posted for the **course**, the author (e.g., which instructor, if there are more than one,, authorized to access this area) of the announcement, and a modify button 1702... ..he instructor fills in and submits to the server. The newly added announcement will then be posted to all students registered in the class.

The **Course** Information link 1618 displays a web page 1800 as shown in FIG. 18 that will set forth all of the **course** information documents or folders that have been posted for the **course**, and a modify button 1802 and a remove button 1804. An add item 1806 or add folder button 1808 is also provided, which displays a web page with various fields

that the instructor will fill in to define the **course** information entry. After submitting the new entry to the server, the new **course** information is posted to all students registered in the class.

The Staff Information link 1620 displays a web page that will set forth all of the staff entries, e.g., instructors, Tasks, that are involved with the **course**, and a modify button and a remove button for each entry similar to those shown in FIG. 18. An add item or add folder button... ..submitting the new entry to the server, the new staff information is posted to all students registered in the class as described above.

Similarly, the **Course** Documents link 1622 displays a web page that will set forth all of the **course** documents or folders that have been posted for the **course**, and a modify button and a remove button as discussed above. An add item or add folder button is also provided, which displays a web page with various fields that the instructor will fill in to define the **course** documents entry. The document may be uploaded directly to the server for later access by the student, or a link to an external referenced resource may be provided, e.g., a URL. After submitting the new entry to the server, the new **course** information is posted to all students registered in the class as described above.

Likewise, the Assignments link 1624 displays a web page that will set forth all of the **course** assignments or folders that have been posted for the **course**, and a modify button and a remove button.

An add item or add folder button is also provided, which displays a web page with various fields that the instructor will fill in to define the **course** assignment entry. The assignment entry may be uploaded directly to the server for later access by the student. After submitting the new entry to the server, the new **course** assignment is posted to all students registered in the class as described above. Also, the External Links link 1626 displays a web page that will set forth all of the external links or folders that have been posted for the **course**, and a modify button and a remove button. An add item or add folder button is also provided, which displays a web page with various... ..After submitting the new entry to the server, the new external link page is posted to all students registered in the class as described above.

### **Course Tools**

Under the **Course** Tools section 1606, the **Course** Calendar link 1628 displays a web page that will set forth all of the calendar events that have been posted for the **course**, and a modify button and a remove button. An add item button is also provided, which displays a web page with various fields that the... ..After submitting the new entry to the server, the new calendar page is posted to all students registered in the class as described above.

The **Course** Tasks link 1630 displays a web page 1900 as shown in FIG. 19 that will set forth all of the tasks that have been posted for the **course**, and a modify button 1902 and a remove button 1904. An Add Task button 1906 is also provided, which displays a web page with various... ..is similar to the one the user will be provided with in his email

function, e.g., allows selection of individual users associated with the **course**, certain predefined groups of users such as all students.

The Instructor Library link 1634 displays a web page 2000 as shown in FIG. 20 that will set forth all of the folders and files that have been posted by the instructor for the **course**, and a modify button 2002 and a remove button 2004. These **materials** are accessible to instructors only and not to students directly. An Add File button 2006 and an Add Folder 2008 button is also provided, which... ..from a pool of references made available to all instructors from the institution. The new entry may be uploaded directly to the server for later **access** by the instructors associated with the **course**. **After** submitting the new entry to the server, the new Instructor Library page is posted to all instructors associated with the **course**.

The Virtual Classroom link 1636 displays a web page that provides a link to either launch a virtual classroom and participate in real-time, synchronous classroom sessions), or to view the classroom archives, where are previous classroom session views and/or download these sessions to the instructor's computer. Each **course** includes a virtual Classroom, which is a synchronous chat room for student and group communications. The Virtual Classroom can be used to hold "live" classroom... ..instructor.

Selection of the Discussion Board link 1638 displays a web page that provides links to the available discussion boards that are associated with the **course**. A discussion board is another communication tool to use in a classroom setting. This feature is similar to Virtual Chat, but is designed for asynchronous... ..or a computer to a central location. A participant can then come and "download" it to work locally. The Digital Dropbox is used to exchange **materials** between a single student and the instructor.

Information that needs to be posted for all students should be placed in the **Course** Documents area using the Page Editors.

Individual student access to the Dropbox is available from the File Transfer Area located in Student Tools area on the **Course**. Students also have group access to a private dropbox from a group homepage.

The web page 2100 displayed lists the current files in the dropbox... ..the s Student area is where files are uploaded and sent to specific students. The user can also delete files that are no longer needed.

### **Course Options**

The **Course** Options area 1608 includes a **Course** Options link 1642 that will display a web page to the instructor that has the links for Button Availability, Tool Availability, **Course** Availability, **Course** Duration, Enrollment Options, Enrollment Fees, and Guest Access. Selection of the Button Availability link will display a web page that will allow the user to set and configure the buttons that are used by students in that **course**, including enabling or disabling them, or making them secure (i.e., only accessible by enrolled students). Selection of the Tool Availability link will display a web page that

will allow the instructor to enable or disable the student tools and communication functions for that **course**, e.g., email, discussion board, virtual chat, student roster, group pages, student dropbox, edit homepage, personal information, calendar, grades, tasks, electric blackboard, student manual, and **course** search). Selection of the **Course** Availability link will display a web page that will allow the instructor to enable or disable the availability of the **course** to students, i.e., it can be kept unavailable until the **course** site is finished). Selection of the **Course** Duration link will display a web page that will allow the instructor to select the duration of the **course**, e.g., continuous, start and end dates, or number of days from the date of enrollment. Selection of the Enrollment Options link will display a... ..the Enrollment Fees link will display a web page that will allow the instructor to specify if fees should be charged for enrollment in the **course**, and what the fees should be. Selection of the Guest Access link will display a web page that will allow the instructor to specify if guests may access the **course**.

Selection of the **Course** Properties link 1644 in the **Course** Options area 1608 displays a web page that enables the instructor to add and/or edit **course** properties, including the **course** name, a description of the **course**, and a subject area for categorization purposes.

Selection of the **Course** Utilities link 1646 in the **course** options area 1608 displays a web page that enables the instructor to select a **Course** Recycler link, an Export **Course** Link, or an Import **Course** Cartridge link. The **Course** Recycler link enables the instructor to recycle the **course** by selectively removing areas of the **course**, which are displayed as check boxes next to various **content** categories, e.g., **course** documents, **course** information, textbooks, assignments, etc., various staff areas and external web links. The instructor can also choose to recycle other areas such as discussion boards, gradebook, assessments, etc. The Export **Course** link enables the instructor to export all, or ific sections, of the **course**, e.g., **content**, users, assessments, and/or discussion boards. The Import  
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**Course** Cartridge link enables the instructor to download and install a **course** cartridge, if they have an access key.

Selection of the **Course** Images link 1648 in the **course** options area displays a web page that enables the instructor to select a Button Style link (to set the button styles for the **course**) and to select a **Course** Banner link (to add or remove a **course** banner on the first page of the **course**).

Selection of the Academic Web Resource link 1650 in the **course** options area displays a web page that enables the instructor to select an Enable/Disable Academic Web Button link (to enable or disable the resources button the **course** homepage) or a Customize Academic Web Button link (to designate the Academic Resources for the **course**, wherein the instructor can customize the number of links and the **content** that is available for the students).

#### User Mannemen

Selection of the Add Users link 1652 in the user management area 1610 displays a web

page... ..link. The Create User link displays a web page that will enable the instructor to create a new user account and enroll him in the **course**, by inputting name, address, and other information regarding the user, designating the user's access level and providing a password if desired. The Enroll Existing User link displays a web page that enables the instructor to enroll a user in the **course**. The Batch Add Users link displays a web page that enables the instructor to create all of the user accounts by uploading a text file... ..link 1654 in the user management area 1610 displays a web page that enables the instructor to list and/or modify the users of the **course**, while selection of the Remove Users link 1656 displays a web page that enables the instructor to remove a user if desired from the **course**. Selection of the Manage Groups link 1658 enables the instructor to create and edit certain user groups, e.g., gifted students or remedial students.

#### Assessment

Within the **course**, instructors are able to provide quizzes, tests, and surveys on-line. Included may be essay, true/false, multiple choice, fill-in-the-blank, or matching... ..panel 1602 allows the instructor to select an Assessment Manager link 1660, a Pool Manager link 1662, an On-line Gradebook link 1664, or a **Course** Statistics link 1666.

Selection of the Assessment Manager link 1660 in the assessment area 1612 displays a web page that enables the instructor to create, edit and otherwise manage the assessment **content** areas. For example, the instructor may create an assessment by entering an assessment name, a description, and setting certain parameters including Show Detailed Results, which... ..are logically linked, usually by subject matter, so that an instructor may draw from a pool to obtain existing questions and answers sets from other **courses**, instructors, semesters, etc. and not have to "recreate the wheel" every time they generate or modify a test. By clicking the Add Pool button, the... ..link 1664 in the assessment area displays a web page that enables the instructor to perform various functions with respect to the on-line **course** gradebook. FIG.

22 illustrates a web page 2200 entitled "**Course** Gradebook", which provides a variety of information including consolidated grades, individual assignment/test scores, direct access to specific assignments or tests by student, or a... ..that it is meaningful. It provides insight into the effectiveness of certain assignments and provides a bridge for allowing instructor assessment of assignment and class **content**. The functions is provided on the On-line Gradebook web page in the assessment area of the control panel include Report By User, which is...add or remove gradebook entries as well as view assessment results, and Export Gradebook, which is exported as a comma-delimited file.

Selection of the **Course** Statistics link 1666 in the assessment area displays a web page that enables the instructor to set parameters and view certain statistics for their **course**. Most instructors want to analyze their class by how much their on-line **materials** are being accessed, but very few have the opportunity to take the time or the effort to determine these numbers. By using the **course** statistics web page 2300 shown in FIGs. 23A and 23B, the system provides a rich tool set for instructors to evaluate the relative statistics of their **courses**. These statistics may be valuable for evaluating on-line versus non-on-line **courses** to determine the relative efficacy of on-line **materials** and how they

are enhancing the **course**. The **Course** Statistics web page has input fields for selecting a report filter, which will yield a report with Overall Summary of **Course** Usage, Main **Content** Areas report, Communication Areas Report, Group Areas Report, or Student Areas Report. A time period must be specified, which may be all dates or between...  
...The Administrator Panel 2402, shown in FIG. 24, gives the system administrator complete access to all of the features of the system including portal features, **course** and club creation and management, institution and system tools, e-commerce features, user management, and other various institutional options. This is accessed by selecting the...  
...2402 includes a Portal Areas group 2406 of functions, a System Tools area 2408, an Enterprise Tools Area 2410, a System Options Area 2412, a **Course** and Community Management area 2414, a User Management Area 2416, an E-Commerce Area 2418, and an Assistance area 2420, as explained further below.

Portal... ...first time they log in to the portal. This allows the enterprise administrator to enable/disable and/or set as required the following modules: My **Courses**, My Organizations, Today's Announcements, Today's Tasks, Today's Calendar, School Services, Student Module, Faculty Module, Staff Module, Alumni Module, Perspective Student Module, Guest... ...This could be a partnership with an off-campus bookstore may be provided as a means for supplementing the on campus bookstore.

Selection of the **Course** tab 2424 in the Portal Area provides a web page that lists four hyperlink selectable options: Customize **Courses** Tab, Enable/Disable **Course** Creation, **Course** Catalog Options, and Off-Campus Learning Partnerships. The Customize **Courses** Tab link will provide a web page that allows the user, again an enterprise administrator, in this case, to enable/disable the appearance of the "**Courses**" tab for all users. The user may also select an image for the tab, as well as the name, and provide a predefined URL that... ...the Enable/Disable Creation Option link provides a web page that allows the enterprise administrator to select an option to not allow users to create **courses**, to allow users to create **courses**, or to allow the user to send an email request for **course** creation. Selection of the **Course** Catalog Options link provides a web page that allows the enterprise administrator to select the use of a default **course** catalog or to specify the use of an internal **course** catalog and the URL of its location. The Off-Campus Learning Partnerships link allows the user to add, modify, and edit hyperlinks to web sites... ...the user is provided with links to Gateway Options 2425, System Settings 2427, System Statistics 2431, Institution Properties 2430, Colors and Images 2432, and **Course** Marketing 2434. The Gateway Options link 2425 provides a web page that will determine whether the login button, **course** catalog, and new user account button appears on the gateway page. The System Settings link 2427 provides a web page with links to Button Overrides... ...can be used throughout the system), Tool Overrides, which sets which tools can be used throughout the system), System Settings/Overrides, which set overrides for **course** and club tools and properties across the entire system), and **Course** Disk Quotas, which sets file system disk quotas for **courses**.

The System Statistics link 2431 provides a web page with links to a System Reports web page, which allows the enterprise administrator to view reports... ...Colors and Images link 2432 allows access to a web page that allows the administrator to modify the

aesthetic properties of the web site.

The **Course** and Community Management area 2414 of the Portal Manager provides hyperlinks for Create **Course** 2436, Manage **Courses** 2438, **Course** Utilities 2440, **Course** Catalog 2442, Create Organization 2444, Manage Organization 2446, organization Utilities 2448, and Organization Catalog 2450.

The Create **Course** web page 2900 is shown in FIG. 29. The administrator will enter the requested information about the desired **course**; e.g., the **course** name, and ID, and a textual description on the web page. The administrator can then specify properties of the buttons that will be used along with the **course** to match his aesthetic concerns. The administrator can then specify various options, such as the subject area of the **course**, whether guests may access the **course**, if the **course** is currently available, if a **course** cartridge may be obtained and its URL and access key, and the instructor ID for the **course**.

The Manage **Courses** web page allows the administrator to list and/or modify **courses**, remove them from the system, and set certain default tools, e.g., email, Discussion Board, Virtual Chat, Roster, and buttons, e.g., Announcements, **Course** Information, Staff Information, Virtual Classroom, etc.) to be used with each **course** in the system. The **Course** Utilities web page allows the administrator to select a Copy **Course** link (to make a copy of a **course** with a new **course** ID), an Import **Course** link, an Export **Course** link, and a Batch Create **Courses** link. The **Course** Catalog link allows the user to categorize **course** and otherwise manage the **course** catalog.

The Create Organization, Manage Organization, Organization Utilities, and Organization Catalog links allow the user to obtain similar control and functionality with organizations as with **courses** as described above.

The User Management area 2416 of the Portal Manager provides hyperlinks for Create User 2452, Manage Users 2454, and User Utilities 2456... ..may be given an administrative access level at this point by selecting the appropriate option that is available, such as, None, System Admin, System Support, **Course** Creator, Account Admin). The role of the user will determine the access and control of the system that the user will have as explained throughout... ..of user data in predefined formats compatible with the system), Batch Enroll Users, which will cause the importing of a file to enroll users in **courses** and clubs that exist in the system), and Batch Remove Users, which will cause the importing of a file to remove users from the system).

The E-Commerce area 2418 of the Portal Manager provides links to web pages for Sponsorships 2458, Partnership Program 2460, and **Course** E-Commerce 2462. The Sponsorship web page has links to Primary Site Sponsor web page a "My Institution" Area Sponsor, a **Course** Area Sponsor, a Community Area Sponsor, and a Services Area Sponsor. These links allow the user to designate if a sponsor is used in each... ..allows the administrator to enroll the institution in the service provider partnership program, which can bring additional e commerce opportunities to the portal environment.

The **Course** E-Commerce page provides links to Enable/Disable **Course** and Club E-Commerce, which permits the selection of e-commerce options for charging fees for the **courses** or clubs, allow administrators to set prices and allows club leaders or instructors to set prices, and a Price **Course** link to manage or set the cost of enrolling in **courses** or organizations.

#### Other Utilities and Functions

One of the key elements to college and university life is the ability to socialize and take advantage of... ..in a single view, as shown in FIG. 27. The calendar utility gives students and teachers access to all calendar events for each of the **courses** they are enrolled in, as well as institutional calendar events.

Since email is the single most popular application on the Internet today, and the leading... ..3100 and 3200 that can be accessed by tab 3102 to provide links that allow students and teachers to find and access academic resources and **content**. These resources are also context-sensitive to the **course** discipline. For example, if one accesses the academic web resources from an accounting **course**, he/she is automatically directed to news and information sources that are relevant to accounting. The user has access to news, web links, reference WO 03/100745 PCT/US03/16094

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address, cost of **courses**, order identifier, order description, and a page to which a user is to be returned when an order is complete, is passed on. Information passed... ..used as an open platform environment, where anyone with access to the Internet may register as an instructor to create, administer, and make available a **course** to anyone else with Internet access. Thus, by entering a publicly available web-site such as www.blackboard.com, a user may register as an instructor and be provided with an instructor control panel for creating **course** as described herein. To create the **course**, the user will define **course** parameters, such as a description, enrollment options, announcements, assessments, and **course materials**, etc., and provide them in the various web pages as described above. The user can then let others know about the availability of the **course** on-line, and a potential student may access the publicly available web site to enroll in the **course**. In this manner, anyone can create a virtual classroom without the need to be affiliated with an institution, and disseminate knowledge through the **course** as previously unavailable.

#### Implementing Multiple Locales in a **Course** Management System

The multi-language (ML) embodiment of the present invention provides an interactive system and method that may be used by system users at... ..example, in FIG. 1B. The ML feature, or embodiment, of the present invention can be used in various settings, such as the delivery of academic **course** work and/or corporate training. The system and method accommodate system users such that users at different levels will have different types of system access... ..e.g., currency, numeric formats, dates) that are used to display the text of an application. The locale can be specified by a user, a **course** instructor, and/or a system administrator.

Turning now to FIG. 39, an exemplary gateway screen display is shown that can facilitate

the use of various... ...for example, examining HTTP headers and/or one or more cookies from a web browser 1008. For example, the HTTP header **Content-Language** `CONTENT=`en-GB"> sent by browser 1008 can cause server 1040 to select an appropriate natural language document. In this case, the CONTENT=`en... ...France) locale would not appear in locale display 4102. Similarly, column 4008 can be selected to determine whether the default locale selected is allowed for **course** use. For example, if locale 7) Espahol (Espaha) was not checked, **courses** being offered taught could not utilize the Espahol (Espaha) locale.

FIG. 4 1. shows an exemplary screen display 4 100 that demonstrates how, for example, a system administrator and/or **course** instructor and/or other individual having privileges can specify a **course** locale. Pulldown menu 4102 can be used to select the **course** locale. The pulldown menu will include those locales that have been checked in column 4008 (FIG. 40). Once the desired locale has been selected, the... ...can be selected, for example, to return to the previous menu. Box 4108 can be checked to make the locale mandatory, in which case the **course** menu frame 4206, and navigation frame 4204 will be displayed in the selected locale, as will be described subsequently.

An exemplary browser display environment 4200... ...in connection with a locale is shown in FIG. 42. The browser display environment can include a top frame 4202, a navigation frame 4204, a **course** frame menu 4206, and a **course content** frame 4208. Top frame 4202 may include, for example, the File, Edit, View, Favorites, Tools, and Help selections, as well as, for example, Back, Forward... ...for example, can then be pressed or selected to go to the web-site. Top frame 4202 can also optionally include various WWW search tools.

**Course** menu frame 4206 can include various **course** related icons, such as.

Announcements, **Course** Information, **Course** Documents, Assignments, and the like. Finally, **course content** frame 4208 can display information associated with a selected icon from the **course** menu frame 4206. Navigation frame 4204 can be used to display the current **course**.

FIG. 43 at 4300 shows an exemplary screen display of an offered **course**. An exemplary top frame 4202, navigation frame 4204, **course** menu frame 4206 and **course content** frame 4208 are shown. In FIG. 43, the associated Enforce **Course** Locale: box 4108 (FIG. 41) has been checked, as indicated by navigation frame 4204, **course** menu frame 4206 and **course content** frame 4208, each of which are displayed in the selected locale, in this case, Italian. The user's selected locale, in this case, English, for navigation frame 4204 and **course** menu frame 4406 has been overridden, but remains for top frame 4202.

In an embodiment of the present invention, **course content** frame 4208 (FIG. 42) can include **material** that does not conform with the selected locale. In this embodiment, no translation, e.g., English to Italian, is performed for **material** submitted for **course content** frame 4208. This advantageously allows, for example, a **course** instructor to provide **material** that can be displayed in **course content** frame 4208 that is not of the

selected locale (e.g., Italian). That is, an instructor can provide **course material** in Italian in **course content** frame 4208, as well as **material** in one or more languages other than Italian.

FIG. 44 at 4400 shows an exemplary screen display of an offered **course**. Top frame 4202, navigation frame 4204, **course** menu frame 4206 and **course content** frame 4208 are shown. In FIG.

44, the associated Enforce **Course** Locale: box 4108 has been not been checked, which causes the navigation frame 4204 and **course** menu frame 4206 to be displayed in the user's default locale, in this case, English. Top frame 4202 is also displayed in the user's default locale. If a user clicks on Announcements in **course** menu frame 4206, a first person 4209 can post **material** 4210 in Italian, and a second person 4211 can post **material** 4212, for example, in Chinese. Other people can post other **material** in one or more languages of their choice.

FIG. 45 at 4500 shows an exemplary method of operation of a ML embodiment of the present... ..can be displayed at step 4524 which can be the same locale as provided in step 4516.

At step 4526, a user navigates to a **course**. Server 1040 can determine the locale configured for the **course**. An instructor, for example, may select a locale for the **course** that is allowed by the...to FIG. 40. Additionally, an instructor, for example, can check the Enforce Locale Box: 4108 (FIG. 41) to enforce the locale selected for the **course**.

At decision step 4530, a determination is made whether the **course** locale is mandatory. If the **course** locale is enforced, at step 4532 the **course** frames, e.g., navigation frame 4204, **course** menu frame 4206, can be displayed in the locale specified for the **course**, overriding any user-specified locale. In an embodiment, when the **course** locale is enforced, **course content** frame 4208 can also be displayed in the locale specified for the **course**. **Course content** frame 4208 can also be left to display any **material** supplied by, for example, an instructor, which may differ from the locale specified for the **course**. If the **course** locale is not enforced, at step 4528 the **course** frames, e.g., navigation frame 4204, **course** menu frame 4206, can be displayed in the user-specified locale as specified, for example, in an HTTP header from the user's browser 4008...

## Claims:

...specified locale;

associating the locale with one or more particular display regions;determining whether the locale is mandatory; andif the locale is mandatory, translating **content** associated with the user-specified locale to **content** associated with the locale.

2 The method according to claim 1, wherein at least one of the plurality of display regions is not subject to the locale.

3 The method according to claim 2, wherein the user-specified locale is used to display **content** in the at least one of the plurality of display regions not subject to the locale.

4 The method according to claim 1, further comprising the step of displaying **content** in the one or more particular display regions in accordance with the locale.

5 The method according to claim 4, wherein the display regions comprise... ..user-locale; associating the locale with one or more particular display regions;determining whether the locale is mandatory; andif the locale is mandatory, translating **content** associated with the user-specified locale to **content** associated with the locale.

7 The method according to claim 6, wherein at least one of the plurality of display regions is not subject to the locale.

8 The method according to claim 7, wherein the user-specified locale is used to display **content** in the at least one of the plurality of display regions not subject to the locale.

9 The method according to claim 6, further comprising the step of displaying **content** in the one or more display regions in accordance with the locale.

10 The method according to claim 9, wherein the display regions comprise frames... ..specified locale, associate the locale with one or more particular display regions, determine whether the locale is mandatory and, if the locale is mandatory, translate **content** associated with the user-specified locale to **content** associated with the locale, and display **content** in the one or more particular frames in accordance with the locale.

14 A computer program product residing on a computer readable medium, for use... ..specified locale;  
associate the locale with one or more particular display regions;determine whether the locale is mandatory; andif the locale is mandatory, translate **content** associated with the user-specified locale to**content** associated with the locale; anddisplay **content** in the one or more particular frames in accordance with the locale.

15 A computer program product residing on a computer readable medium, for use... ..specified locale;  
associate the locale with one or more particular display regions;determine whether the locale is mandatory; andif the locale is mandatory, translate **content** associated with the user-specified locale to**content** associated with the locale; anddisplay **content** in the one or more particular frames in accordance with the locale.

16 A system, for use in a computer network environment, comprising:  
a web... ..locale with one or more particulardisplay regions of said web browser;determines whether the locale is mandatory; andif the locale is mandatory, translates **content** associated with the user-specified locale to **content** associated with the locale.

17 The system according to claim 16, wherein the plurality of display regions comprise frames.

18 The system according to claim 16, wherein the data repository comprises a relational

database.

19 The system according to claim 16, wherein **content** is translated in accordance with at least one of Universal Character Set and Unicode encoding.

20 The system according to claim 16, wherein the data...

7/K/43 (Item 5 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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Country	Number	Kind	Date
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### Detailed Description:

...is that the user has a reason to return again and acrain, based on the depth of the musical selection, to select more variations in **listening**.

The actual code is provided as appendix 2-IT.

221

Appendix 2-11

222

!/usr/bin/perl -w

#-----

User choice Program

9This proaram reads in... ...imaaes";

my \$image

url = "`wvorw.themomi.org/\$rootdir";

my \$sonor root = "../htdocsP";

Co

my \$earthe = "themomi.earthe.net";

9----- Start Code -----

\$1=1; #flush

print "**Content**-type: text/html

n

n"; # send basic header

use CGI qw(:standard);

223

use CGI::Carp('fatalToBrowser');

use DBI(;

```

use stnet;
my $db host= "AAA... ..I 1) or die "can't connect to db",
my @play
list;
my $artist;
my $song
name;
print<

```

```

CONTENT=`www.themomi.org">
CONTENT="Ted Fitzgerald">
CONTENT="My hovercraft is full of eels! '5
CONTENT="Music selection / creation software">
Dialog eLink: Order File History
7/K/44 (Item 6 from file: 349)
DIALOG(R)File 349: PCT FULLTEXT
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```

	Country	Number	Kind	Date
Patent				19

### Detailed Description:

...such application is distant learning that takes place over a computer network. These systems allow for collaborative work between teachers and students based on educational **content**, which comprise various instructional **material**.

1 5 In education, various advantages ...make the private teacher approach too expensive for most students.

Ali alternative tutoring systems require the physical presence of a student, a teacher, and teaching **materials** all at the same location. The student must travel to ...alter agent personae; the teacher controls the student's use of the system by assigning, scheduling, and prioritizing the student's access to the instructional **material**; the teacher can customize **material** available to the students by modifying sequencing of instructional lessons, choosing the homework ...is viewed on line by teacher.

Email and newsgroups are used by teachers, non-interactively,,fo send information to their classes, such as schedule and **material** changes. Students can communicate with their teachers, and share work or interests with other students.

U.S. Patent No. 5,904,485 issued to Siefert...subject matter experts makes it possible for a student who has mastered the unit but who is curious about tangential or deeper levels of the **material** to ask questions while his or her interest is still fresh.

U.S. Patent No. 6,064,856 issued to Lee et al. discloses a...informed of the student's progress and activities as well as allowing the teacher to tailor instructional programs for each student. The teacher can select **material**, including text, illustrations, length of lesson and questions to be answered, to comprise the **courseware** for a subject. Assignment process is controlled by the CPU of the teacher's station which downloads the control programs corresponding to the lesson segments if the student still fails to grasp the **material** and answers some questions incorrectly, the system will send a message to the teacher's workstation indicating which **material** the student is having problems with. The teacher can then use his or her own methods to personally help the student to grasp the **material**.

U.S. Patent No. 5,176,520 issued to Hamilton discloses a computer-assisted instruction system for a classroom which allows a teacher to share...on per session basis, without flexibility. In other progress. In some systems, the colors and logo are the only configurable options. In other implementations, the **content** available for a session is fixed. Also, there are conventional **web-based** interfaces for use in **Learning Mgmt Systems (LMs)**. However, the conventional web-based interfaces can only support HTML format, but do not support other formats, such as XML.

Hence, there...the present invention, a collaborative system dynamically constructs collaborative and interface components. The present invention allows multiple participants to engage and collaborate using dynamically created **content** and

6

interfaces. An exemplary embodiment of the present invention relates to collaboration between teachers and students in a learning environment. Among other things, the present invention provides video conferencing, **audio** and text messaging. According to one feature, the present invention dynamically constructs a collaborative environment using a collaborative Application Programming Interface (API). The API dynamically...  
...collaborative components of one client and another client. The API allows for dynamic inclusion of the collaborative components based on parameters that are related to **content** and user interface. The parameters are stored in various configuration files that may include user, 1 0 application and communication profiles. The present invention reads the configuration information to dynamically construct the user and **content** environment for collaboration amongst participants.

In one embodiment, the user profile includes parameters relating to user's actions, including actions a participant can take while...corresponding configuration profiles. Collaborative components could be various tools, for example, drawing tools or tools used for encouraging progress in a learning session. Also, communication, **audio**, video, whiteboard, view, chat and participant selection tools of various type can be included in the collaborative components. Furtherinore, in client stations that support broadband...  
...dynamically constructs or otherwise includes a video interface component. On the other hand, in client stations with narrowband communication capabilities, e.g. dial-up, an **audio** collaborative component is included instead of the video component.

A moderator participant, such as, a teacher collaborating with multiple students, which is given the privilege to start a session, end a session, control interactivity and present **content** to non-moderator ...teacherstudent collaboration. In one such system, the teacher and student participants collaborate using client stations that are connected to one or more servers that provide **content material**.

The servers can also access various databases to retrieve and transmit configuration information to client stations.

In the present invention, the student is assessed and a set of learning objectives is established. By applying a set of rules, the objectives and appropriate **content** components for a learning session is generated dynamically. Moreover, based on the student's previous I/O progress or lack thereof during a session, the presented **content** can be changed accordingly.

If additional **content** is needed, the present invention executes a "dynamic agenda" ...student's ability. Based on such parameters, the present invention creates a markup language page that can be used for downloading and presenting **content** to the student based on a built agenda. The build agenda can comprise a number of distinct contents. For example, a curriculum agenda may include a number of prescribed lessons.

According to another aspect, a **content** authoring system is provided. The system provides an interface for dynamic generation of web-based **content**, for example, an instructional lesson. In one exemplary embodiment, the present invention structures reading and math **content** into common "problem-type" and learning structures. Smart-templates support these educational structures, providing much more than just formatting like bold, underline, etc. which are...to see all collaborative activity.

The participants can utilize wired and wireless devices that act as client workstations for one or more servers, which serve **content**, for example, instructional **material** via a learning center website. In yet another aspect, the present invention is based on a peer-to-peer model. Under this arrangement, one station acting...endeavor. In an exemplary embodiment described in this specification, the intellectual endeavor involves assessment, management and instruction of students and creating learning environments comprising instructional **materials**.

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The present invention is directed to various aspects of a collaborative process, including setting up collaborative sessions amongst participants, presenting and a collaboration agenda, which according to one feature of the present invention is individualized to accommodate various types of participants, presenting dynamically created **content** and including collaborative components within the **content** to allow ...a customized client application. The invention also includes a whiteboard component that allows users to create graphical annotations on top of variably sized pages of **content**. The invention also allows for the invocation of nearly any web-based **content** and curriculum application.

The exemplary system described herein is designed for use with a teacher ...up, the Internet, virtual private networks, or other methods. The participants collaborate with each other from remote locations where the teacher can send selected instructional **materials** to the students. The teacher can see what each student is doing on that student's interface upon receipt of the image on the display...a visual display for providing a visual interface with a user. However, the devices 12 are also capable of communicating information in any form, including **audio** and video form, or in any other form conceivable by one skilled in the art.

The server 1 ...machine can serve as both servers. The WAP server 22 provides user accessible information through a WAP client. The WAP server 22 can also retrieve **content** and information located on other application servers and databases.

As shown ...The Intranet model is typically used internally by companies to allow access to company information.

A Web Site is a computer system that serves informational **content** over the network using the standard protocols of the World Wide Web. Typically, a Web site corresponds to a particular Internet domain name and includes the **content** associated with a particular organization. As used herein, the term is generally intended to encompass both (i) the hardware/software server components that serve the informational **content** over the network, and (ii) the "backend" hardware/software components, including any non-standard or

1 5

specialized components, that interact with the server components...layer 38, a database layer 40, an operations layer 42, an operation staff layer 44.

The user interface layer 30 is responsible for presentation of **content** to the participants. The user interface layer 30 also communicates with a system delivery and prescription generation

16

software within the backend layer 38, which performs assessment delivery and prescription generation functions within an exemplary learning environment, which is collaborative. The backend application layer also manages collaborative **content** delivery, scheduling and customer relationship management, incentive credit card processing and billing functions.

The database layer 40 manages information storage functions related to **content** management, including curriculum, website context, profiles and other knowledge base information. The database layer 40 is also a repository for operational data including the participants...functions that are required for engaging in sessions in accordance with the present invention. As described later in detail, the whiteboard is used to present **content** to the participants. Teachers and students work on the whiteboard, while communicating with each other, for example, using a Voice Over ...fully compatible with 1 5 commercially available computer systems, such as, for example Pentium based personal computer systems, to allow integrating third party software. Of **course**, the invention is

not limited to any one kind of processor type, and other computer systems and processors may be employed. In another embodiment, the...Under the present invention, a workstation can be equipped with a keyboard, mouse, a pen tablet, a visual input device (e.g., a camera) and **audio** input device (e.g., a microphone) for carrying out **audio**/visual and text communication between a teacher workstation and a student workstation. As such, the workstations 32 and 34 support interface channels comprising input, output **audio**, video and other type of interactive channel, at separate locations. For example, the workstations may be located at a home, office, or any other designated... ..collaboration services offered by the present invention. The system of the present invention utilizes wellknown voice or video over Internet Protocols (IP) standards for maintaining **audio** and video interactive channels. Each interactive channel is used for ...access the system. The public server 305 communicates with a database server 307 to obtain attributes about the participants and other

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program information. A **content** server 309 provides **content** to the client stations 301 and 303. For example, a teacher client can request **content**, e.g., answer keys, and other information from the **content** server 309. A collaboration server 311 facilitates multi-party collaboration. The collaboration server 311 contains the programs used for the participants to communicate and interact...voice channel control application running over the server 313. A curriculum server 315 provides instructional curriculum for a student to the teacher client 303.

The **content** for that curriculum are obtained from the **content** server 309. A back office system 316 implements various operational features, including technical support, customer support, etc.

To access the system, a participant typically connects...The application then dynamically creates the component, block 405. Other features, such as video can be included for broadband users. However, for dial-up users, **audio** may be used. The application initializes the component as defined in the skin file, block 407. This process is repeated for all the GUI components...transferred to the user, blocks 409, 411 and 413.

#### 1.5 Collaboration Launch Web Sites

The invention can interface with nearly any web-based **content** or curriculum application. The web address of the curriculum management system is specified in the configuration files. The client application is constructed to allow for g. age, language, program of study, grades, etc.). When one participant, for example, the teacher, selects a **content** to view, the **content** is loaded into a whiteboard and all relevant participant clients on that communication channel, allowing the participants to scroll through the **content** and annotate as necessary.

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Preferably, a **content** and curriculum application in accordance with the present invention is web-based, either HTML or dynamic web page format such as ASP or JSP. In one embodiment, the **content** and curriculum application provides an HTML or dynamic web page format as an answer key for each lesson in the program. There is no restriction on

the physical location of the **content** and curriculum files, as long as they are on a web server accessible to participants in the session.

An exemplary embodiment of a method for interfacing with web-based **content** and applications is now described. First, the web address of the **content** and curriculum application is specified in the client configuration file. When the moderator, a user who selects what **content** can be viewed, enters the session, the URL for the **content** and curriculum application is loaded into the interface by the client application. Different **content** and curriculum applications (URLs) can be specified for different channels (e.g., one application can serve a group and another when there is one-on-one instruction). The moderator selects which piece of **content** should be worked on by clicking on a URL in an agenda pane. The URL is transmitted to all clients who are registered on the channel. Each client, upon receiving the message containing the URL, independently requests the **content** for display into the whiteboard. Preferably, the requests from the clients are standard HTTP GET requests for HTML files as if the HTML file had...collaborative learning session in accordance with the present invention, teachers are presented with an individualized prescription for each student that includes a collection of educational **materials**. The teacher selects an individual lesson from a corresponding prescription of lessons, which are displayed in the whiteboard of both the teacher and the student...student tab 5 0 1, all students are switched into their individual sessions until the "all" tab is selected again. In the main session, an **audio** channel opens amongst all of the participants. Thus, each student in the main session is able to communicate with the teacher and with each other... ..the main session, the whiteboard is shared between all students and the teacher. This allows all the students and the teacher to view the same **material** at the same time.

In addition to interacting with all ...a student tab on the interface.

When a teacher is working with a student in an individual session, the teacher and student view various collaborative **content** on the same whiteboard. When the ...student's whiteboards in full-screen mode. Switching between students via corresponding student tabs results in switching between the corresponding whiteboards and channels. The whiteboard **content** in the main and individual sessions is maintained throughout the session. This allows the teacher to bring all students together and then return to ...the teacher workstation includes a session prescription window that includes the prescribed subjects for the students. The teacher uses the prescription window to select the **content** displayed on the whiteboard of the teacher and student.

Among other things, the teacher module provides the **following** functionalities: **view** and control instructional **content**, adjust headphone and microphone volume, engage a student in educational dialog, hear and respond to student dialog, inspect, select and operate appropriate whiteboard annotation tools and interface controls, respond to a student query or request verbally or by annotating **content**, query or request student performance on instructional **content**, respond to a request for teacher attention, highlight specific areas in the displayed **content**, create demonstrative text or graphic **content** on the fly, note student responses, answers and session cominents, and reward student effort

and progress with tokens.

As stated above, the "All" tab enables...5 is a button marked "View" Selecting this button allows the teacher to view the whiteboard and session prescription of one student, while maintaining an **audio** connection with another student.

Student tabs are live throughout, allowing the teacher to switch back ...button on the teacher interface to trigger the capture and storage in the database of an image that consists of the current piece of instructional **content** plus all of the teacher and student annotations that have been over-layed on the whiteboard. This image is then moved to a web server. A link to the **content** from the students' parent web site ...work and progress through the program.

#### Student Module and Collaboration Components

The student module generates the student workbook and allows the student to receive educational **material** sent by the teacher. FIG. 6 shows a student interface created by the student module. The module also allows the student to enter answers via...for conducting video conferencing with the teacher and other students.

Among other things, the student module allows the student to view and scroll through instructional **content** and **material**, adjust headphone and microphone volume, engage the teacher in educational dialog, and ...annotation tools and interface controls. The student module also allows the student to respond to the teacher's query or request verbally or by annotating **content**. Moreover, the student module allows the student to request teacher's comment on instructional **content**, request teacher attention, highlight specific areas in the displayed **content**, and create demonstrative text or graphic **content** dynamically.

As shown in FIG. 6, the student control panel area includes icons that enable a student to communicate with the teacher, even when the...attention, an automated conversational chat function is initiated which displays a message for the student in the chat panel of the student's module. The **content** of the message is linked to the learning objectives that the student is currently working on, and the student is prompted to 1 0 review...time that is needed for the teacher to finish up with another student and to respond the student's request for help.

Asynchronous interactive educational **content** is included for individual student use and practice, who may also require some synchronous interaction with the teacher. In this case, one feature of the present invention is to allow interactive **content** with graphical drag and drop, sound or basic dynamic numerical input and animated graphic functionality to be delivered to a non-active student. This **content** is functional and can be manipulated by the student alone, until the teacher starts interaction with the student again. At that time, the current state of the interactive **content** is transmitted to the teacher module. The teacher module loads the **content** on the teacher workstation, where the whiteboard **content** is **updated** to reflect the state of the current work that the student has completed. This feature provides a bridge to allow independent interactive lessons to

be updated or synchronized via the  
29

network, thus providing the ability for teachers to synchronously interact and instruct students using asynchronous locally executing interactive **content**.

FIG. 5 and FIG. ...is disabled by another color, if the student is not there or has dropped off or is disconnected. Additionally, if a student drops off, an **audio** signal sounds and a pop up box display in the teacher workstation indicates the drop off. The current student tab remains selected to identify which student is currently being tutored.

#### Applet Based Whiteboard

The collaborative whiteboard is used to display **content** to the participants. The whiteboard provides each teacher or student, with tools and/or functionality in order to maximize the collaborative environment. The white board includes annotation components for annotation of the **content** displayed on the whiteboard. Thus, the teacher can add comments ...tool allows erasing any lines, text, shapes, or other objects created as part of the collaboration on the whiteboard. However, non-annotated background or instructional **material** may not be erased from the whiteboard. In one embodiment, erasing may be accomplished by clicking on the eraser tool and then clicking on a...own marks, but not those of the teacher. A "Clear" button can be provided that allows the user to clear the entire whiteboard of annotated **material**.

As part of the whiteboard tool bar on both the teacher and student workstations, a drop-down list of motivational stickers which can be picked...teacher direct the student's attention to particular information, a "Sync" button is provided that repositions the student whiteboard to match the location in the **content** scrolled to by the teacher. This allows the teacher to orient the student **content** window to a position determined by the teacher. Also, the teacher can switch from a **content** background to a blank sheet background for use in instruction outside of the constraints of the current whiteboard background. The teacher is also able to switch back to the **content** being white space at the end of each **content** page.

FIG. 7 shows a flow chart for creating the whiteboard on a client station. Initially, **content** is selected and pushed to the whiteboard, block 701. The **content** is usually stored on the database 24 shown in FIG 1, which is accessible by any server 10. In this example, HTML **content** provided from a web address is shown on the whiteboard, block 701. The whiteboard then loads the HTML **content** from the web address, block 703. The whiteboard translates the HTML **content** so that it appears at the position of the whiteboard dictated by the whiteboard's scrollbars, block 705. The whiteboard then renders the translated HTML **content**, block 707. In some instances, annotation to the **content** may have been made, for example, using the free form tool described above. The whiteboard determines if there are any annotations to render, block 709...whiteboard's scrollbars, block 711. The whiteboard determines if the annotation is visible, block 713. If so, the annotation is drawn over the HTML **content**, block 715. When there are no more annotations to draw, the operation is finished, block 717.

### Dynamically Created Collaborative Agenda

Most prior art collaborative tools implement an "agenda-building" approach where **content** for a session is pre-loaded. In the present invention, the student is assessed and a set of learning objectives is established. By applying a set of rules, the objectives and appropriate **content** components for a learning session is generated dynamically. Moreover, based on the student's previous progress or lack thereof during a session, the presented **content** can be changed accordingly. If additional **content** is needed, the present invention executes a "dynamic agenda" process where the agenda is refreshed during a learning session.

The present invention builds an agenda...the agenda relevant to a given student is downloaded.

Each agenda item has a "Score" box to indicate what grade the student received on the **material**, which is passed back to a progress-reporting back-end system as a curriculum parameter. The agenda is refreshed if the teacher runs out of **content** or to reflect progress **updates**.

In the teacher interface shown in FIG. 5, the session agenda is presented in the prescription window. This window displays an HTML page that is generated uniquely for

each student and learning session, based on curriculum parameters that relate to student's performance in meeting learning objectives. For each **content** item in the prescription, there is a link to load the **content** into the whiteboard and another link to load the answer key and the grading forms. After verifying that the **content** loaded is appropriate for the ...The curriculum application can then record scores when the lesson is complete. This information can be used as curriculum parameters to determine the next relevant **content** or agenda.

0 Thus, one aspect of the present invention relates to creating an agenda based on curriculum parameters that reflect student's ability. Based on such parameters, the present invention creates a markup language page that can be used for downloading and presenting **content** to the student.

The teacher has the corresponding answer key for the **content** loaded into the agenda 5 panel, replacing the agenda. The moderator may score the **content** in the agenda panel, if provided for by the **content** and curriculum application. Upon returning to the agenda panel, the previous lesson score can be reflected and a new agenda can be displayed taking into account scores and other participant attributes that the **content** and curriculum application supports.

### Dynamic Generation of Web-based Content

According to another aspect, a **content** authoring system is provided. The system provides an interface for dynamic generation of web-based **content**, for example, an instructional lesson. In one exemplary embodiment, the present invention structures

reading and math **content** into common "problem-type" and learning structures. Smart-templates

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support these educational structures, providing much more than just formatting like bold, underline, etc. which to students needing more help.

A large library of **content** is available in the **content** server 309 (shown in FIG. 3), including XML formatted data **content**. The **content** may include both formatted text (italics, underline, etc. are part of the teaching **material**) as well as supporting graphics and images. In addition to dynamically generating **content**, the present invention can use flat HTML files. If XML is used, the XML **content** can be rendered into HTML and stored as flat files on the server.

Many types of **content** can be used in connection with the system. An academic reading piece of **content**, for example, could contain a multi-paragraph reading followed by a series of questions. The questions might be asking what the main idea of the...student to draw a line generated by a given equation. The student will use the drawing tool to draw in the line.

As noted before, **content** can either be in XML or HTML format. The format used is compatible with the whiteboard (or other application) to allow the teacher and student to each independently annotate on top of the **content**.

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Preferably, the format allows the ability to.

1. Leverage XML tagged **content** either as XML, HTML, or other format
2. Minimize download time

...a "mini-browser" and have mark up language parsing capabilities. In one exemplary embodiment, a Java based HTML component is used to render basic HTML **content**.

#### Collaborative Application Program Interface

According to one feature, the present invention dynamically constructs a collaborative environment using an Application Programming Interface (API). The API dynamically based on parameters that are related to **content** and a user interface. The parameters are stored in various configuration files, which may or may not include user, application and communication profiles. The present invention reads the configuration information to dynamically construct the user and **content** environment for collaboration amongst participants.

In the system of the present invention, certain other functions are also performed programmatically through APIs or other integration capability...the message has not been created, the collaboration server proceeds to create the channel. The collaboration server then records the message and checks for users **listening** to the channel. When a listener to the channel is located, the message is delivered to that listener. If there are more listeners, they are...be as compressed as possible to minimize space requirements. Also, the

recording of all pieces is viewable under standard tools (Media Player, notepad, etc). Of **course**, any properly formatted player may be used.

Using the recording feature, a ...from the student, teacher and parent sites, provides automated support for technical issues and questions. Participants may type a question and be directed to web **content** that most closely addresses the question.

A classroom test program accessible from student, teacher and parent sites tests the installation and configuration of the software...from the database and displayed by session and user. Links are then created dynamically to allow users to launch monitor programs, for example, to monitor **audio** or classroom, or to trigger a program to test their network connection.

1 0 A server environment and version switch mechanism switches the users between...

### Claims:

...configuration file to dynamically construct a collaborative environment, wherein the one or more parameters relate to at least one of a user's actions, collaborative **content**, and communication capabilities within the collaborative system.

2 A collaborative system, comprising:

I 0 one or more client stations that provide interaction amongst a plurality...

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	Country	Number	Kind	Date
Patent				19

### Detailed Description:

#### COMPUTERIZED LEARNING SYSTEM BACKGROUND

There are a number of ways to create a simulated learning environment.

Traditionally, a simulated learning environment is developed using educational **audio** and visual **content**. In the typical scenario, a combination of text, **audio**, video and animated **content** are arranged into a presentation and stored in electronic format. This

arrangement of **content** creates a simulated learning environment that is often referred to as electronic learning (e-learning).

Interactive e-learning designs have been developed for the **Internet**. **Internet** based e-learning applications or web sites that provide synchronized media **content** are forced to deliver their **content** within the constraints of each user's bandwidth resource parameters. While this is not a particular concern for users with high bandwidth network connections, it is a concern for users with low bandwidth network connections.

Consider a web site that delivers dynamic, media rich **content**. If, for example, synchronized text, and multi-megabyte **audio** and animated **content** are delivered to a user with a low bandwidth network connection, the synchronization during playback will not be preserved. In particular, the text **content** can load before the animated **content**, thus the synch will be off during playback and the throughput, end-...the intended multimedia experience.

Different schemes have been developed to preserve the viewing experience of media data over a network connection. One scheme combines media **content** into a single data file, or object for downloading or streaming. Another scheme combines media **content** into data packets for streaming. However, these schemes are not suitable for multi-megabyte **content** and for interactive media. If, for example, a user is viewing one media file which offers links to other media files and ...or s treamed.

As a result, there will be interruptions in the user's interactive and viewing experiences. These interruptions are common to viewing such **material** over low and high bandwidth network connections.

## SUMMARY

The schemes described above provide limited solutions to the problems described. In particular, one drawback is that they are not versatile, namely because 1 0 they do not facilitate the transmission of multi-megabyte **content**. Such problems ...plurality of data objects can' include a text data object, a media data object, a markup language data object, and a scripting data object. A **content** creation station can develop an interactive presentation by selecting an arrangement of the data objects that are stored in ...a system and method can implement an electronic learning environment in a distributed computer system. A database can store a plurality of media objects. A **content** creation station can select an arrangement of the media objects from the database. Each selected arrangement of the media objects can be generated into an...accordance with an interface for a presentation system, a method and system can implement an electronic learning navigation environment over a communications network. A **course** structure file can define a structure of an interactive presentation. The **course** structure file can reference information about pages included in the interactive information. The **course** structure can be an XML document that includes aliases to pages and page assets in the **course**.

A table of contents can be included in the electronic learning navigation environment.

The table of contents can dynamically synchronizes its assets when a user...over a communications network. A progress bar can display three types of information: an amount of a page delivered, a current page location within **course** structure file, and a number of time-markers present in a page.

Each time-marker can be a node in an interactive presentation time-line...process all 0 interactions associated with interactive exercises.

In accordance with a system for accelerating delivery of electronic presentations, a method and system can deliver **content** over a communications network. An interactive presentation can ...can be either XML data, JavaScript data, or HTML data. The interactive presentation can reference the page assets of the plurality of pages in a **course** structure file. The page assets can be referenced in a particular section of the **course** structure file that is for the pre-loading engine. The preloading engine can determine anticipated pages, and can deliver the page assets for the anticipated pages to the **course** structure file. The references to the anticipated pages can be replaced by the actual page assets of the anticipated pages.

In accordance with a system... ..can be delivered to a client system memory and cache location. Once the assets of the anticipated page have been delivered, their references in the **course** structure file can be removed.

In another aspect of the electronic learning system, the actual XML data of an anticipated page can replace its corresponding XML reference in the **course** structure file. The remaining page assets of the anticipated page can be delivered after the actual XML data replaces its XML reference in the **course** structure file.

The actual XML data of the anticipated page can be delivered to a cache location and a memory location.

In another aspect of the electronic learning system, the actual JavaScript data of an anticipated page can replace its corresponding JavaScript reference in the **course** structure file. The remaining page assets of the anticipated page can be delivered after the actual JavaScript data replaces its corresponding JavaScript reference in the **course** structure file. The actual JavaScript data of the anticipated page can be delivered to a cache location and a memory location. .

I 0 In accordance...the hyper-download system according to an embodiment of the present invention.

FIG. 18 is a diagram depicting an XML data reference link in the **course** structure file.

FIG. 19 is a diagram depicting the corresponding XML data of an anticipated page.

FIG. 20 is a diagram illustrating the resulting XML data in the **course**

structure file.

FIG. 21 is a diagram illustrating ...flow diagram describing the steps of the x-builder application.

FIG. 28 is a diagram illustrating the x-builder interface displaying the organization of imported **content** stored in the common files database.

FIG. 29 is a diagram illustrating the interface of an x-builder **content** editor interface.

FIG. 30 is a diagram illustrating an embodiment of the x-builder application interface.

FIG. 31 is a diagram illustrating an embodiment of...a web browser. Scripting languages include instructions interpreted by a web browser to perform certain functions, such as how to display data.

An e-learning **content** creation station 150 stores the interactive presentation on the server 120. The e-learning **content** creation station 150 includes **content** creation software 150 for developing interactive presentations over a distributed computer system. The e-learning **content** creation station 150 enables access to at least one database 160. The database 160 stores interactive presentation data objects such as text, sound, video, still and animated graphics, applets, interactive **content**, and templates.

The client system 130 accesses the interactive presentation stored in the database 160 or from the server 120 using TCP/IP and a... ..the client system 130.

According to an embodiment of the present invention, the client system 130 is operated by a student in an e-learning **course**. The e-learning **course** can relate to any subject matter, such as education, entertainment, or business. An interactive presentation is the learning environment or classroom component of the e-learning **course**. The interactive presentation can be a web site or a multimedia presentation.

Embodiments of this invention, such as the interactive presentation, or more specifically, the e-learning **course** product, are commercially available from Telecommunications Research Associates, LLC of St. Marys, Kansas.

FIG. 2 is a diagram illustrating the different layers of the interactive presentation **content** according to one aspect of the invention. The interactive presentation provides an e-learning **course** structure layer 180. The e-learning **course** structure layer 180 defines the structure of the interactive presentation. The e-learning **course** structure layer 180 includes a chapter layer 182 that features chapters or lessons in the e-learning **course**. Each chapter layer 182 includes a page layer 184.

The page layer 184 represents the pages in the chapter layer 182. The pages illustrate the... ..The subject matter is more particularly represented in a presentation layer 186, which provides instructional data, navigational tools and interactive exercises for the e-

learning **course**.

A hyper-download layer 188 includes a pre-loading engine that systematically delivers specific layers of **content** from the interactive presentation to a memory location 130-4 or a scratch location 130-2, such as a cache.

The **content** that is delivered by the pre-loading engine can change in response to student input. Student input can trigger interactive and navigation events. The student...display it in a browser user interface.

The page assets layer 192 consists of data objects that can be linked by the different layers of **content** in the interactive presentation. For example, page assets are referenced in the page layer 184 and the presentation layer 186. The data objects in the page assets layer 192 can provide instructional, navigational and interactive **content**. The data objects of the page assets layer 192 can include any form of webdeliverable **content** such as Flash objects, navigation elements, metadata, HTML, XML, JavaScript, style sheets, media and text data, and user data.

According to one aspect of the invention, the **course** structure layer 180 is an XML **course** structure file that defines the interactive presentation. The **course** structure layer 180 defines requirements, **content** and media assets associated with the layers of the interactive presentation. More particularly, the **course** structure layer 180 is divided into three sections: attributes, structure, and **content**.

The attributes section defines the **course** title, score identification, user interface properties, peripherals, and testing attributes. The score identification attributes allow the interactive presentation to track a student's scores on... ..look and feel of-. the table of contents, closed captioning region, toolbar, and navigational buttons. The peripherals define whether prerequisites are required to take the **course**, and whether the **course** has supplementals, objectives, job aids, and the like. For example, if the interactive presentation requires a student to have prerequisites, the attributes section of the **course** structure file determines whether prerequisites are required.

The **course** structure file defines the testing environment for the interactive presentation with the testing attributes. The testing attributes can define a mode associated with exercises. In...structure for the chapters 182, and the pages 184 within the chapters 182. In particular, the chapters 182 are further defined as folders in the **course** structure. Each folder is given a folder title. Each page 184 is referenced with an alias within a folder, such as <ref--?c20>. With this structure for the folders (chapters) and pages, the XML **course** structure can point to every chapter 182 and page 184 in the **course** structure 180.

The **content** section defines the specific layers of **content** for the pre-loading engine of the hyper-download layer 188 to download. Specifically, each page in the 5 page layer 184 is linked in the **content** section of the XML **course** structure file. An example of one page that is linked in the **content** section of the XML **course** structure file appears as follows.

## <content>

Summary  
scriptedflash

55916 swf

## <content>

The page alias, the title of the page, , the type of page, scriptedflash, a data reference link, , and specific media files 55916-OOOI.swf are referenced in the **content** section of the XML **course** structure file. In this example, some page assets 194 are referenced, such as the data reference link, which references an XML file, and the media file, which references a Shockwave file.

According to another aspect of the present invention, the **course** structure file is stored in a JavaScript array. Each page in the page layer 184 is a node in the JavaScript array. Each node can have corresponding attributes.

By storing the entire **course** structure in an **course** structure file (as XML or in a JavaScript array), the interactive presentation can simplify the design of the **course** for a developer, and enhance the viewing experience for a user. In particular, the **course** structure file enables all components of the interactive presentation to be fully integrated with the **course** structure. Components such as navigational elements, menus, software components, and the like can retrieve the **course** structure directly from the **course** structure file. Each component can receive the most **update** information about the **course** structure with the **course** structure file. Furthermore, the **course** structure file provides a ...displayed in a browser user interface 130 In general, the layout of the user interface features four specific areas that display instructional, interactive or navigational **content**. These four areas are animation-video region 192, closed caption region 194, toolbar 196 and table of 15 contents 198.

The animation-video region...is a diagram illustrating an embodiment of an animation-video region

192 of the user interface 130 The animation-video region 192 displays an example **course** map. The **course** map can be a graphic or animation. The **course** map provides an overall view of the **course** chapters and sections. The **course** map is a navigational tool that allows students to navigate to a specific topic or section of a chapter or lesson within the **course**. The **course** map links to the **course** structure file, which defines the structure of the interactive presentation.

Technical **content** interface buttons can be used in connection with the **course** map. If selected, the buttons can perform navigation events. One example of an action performed in connection with a navigation event is to display a **course** introduction movie. If the **course** introduction movie is pre-loaded on the client system 130, it is displayed on the

user interface 130 If the introduction movie is not pre...engine determines the interactive exercise contents based on a mode associated with the interactive exercise. The mode can be defined by the attributes of the **course** structure file. In particular, the **course** structure file can instruct the interactive exercise engine to 0 display an interactive exercise according to a specific mode. For example, the interactive exercise engine can display the interactive exercise in: exercise mode, exercise with the check it button mode, quiz mode, and test mode. The mode defines the **content** displayed on the user interface and the navigation elements associated with the interactive exercise. The mode also defines the testing 5 environment for the...via mouse interaction or keystroke interaction.

Text accompanying the student's selection of an answer is feedback 200.

Links to review relevant portions of the **course** are called remediation objects ...be a learning management system. The user can log in to the learning management system. The learning management system allows students taking the e-learning **course** to login and experience the interactive presentation. The students can also store notes in their user data on the learning management system.

Each time the...12 is a diagram illustrating an embodiment of the animation-video region 192 of the user interface 130 The animation-video region 192 displays a **course** navigation bar. The **course** navigation bar provides navigation/playback control buttons. The user can navigate through sections of the interactive presentation by using the navigation/playback control interface buttons displayed with the **course** navigation bar. The navigation/playback control interface buttons include control elements such as a previous button 240, next button 242, pause/play button 244, and...of information to the user. The 1 5 amount of the page delivered to the client system 130 is displayed. The current page location within **course** structure file, and the number of time-markers 248 present in the **course** page are also displayed.

Each time-marker 248 is a node or frame in the interactive presentation timeline. The time-markers 248 can be used...the right arrow key, the navigation display engine can navigate to a specific frame within the interactive presentation time-line, and display text, animation and **audio** assets associated with the frame in synchronization. In particular, the time-markers 248 preserve this synchronization.

If a user initiates a navigation event to advance accessible from the client system 130, the audio-visual contents of the next page are played-back in the animation-video region 192, the closed caption region 194, the toolbar 196 and the...diagram illustrating a table of contents 198 of the user interface 130 The table of contents 198 is a navigation tool that dynamically displays the **course** structure in a vertical hierarchy providing a high-level and detailed view.

The table of contents 198 enables the user to navigate to any given page of the interactive presentation. The table of contents 198 uses the **course** structure file to determine the structure of the interactive presentation. The user can navigate the table of contents 198 via mouse interaction or ...have an icon indicator identifying the state of the open folder.

The XML and meta tags can be used to differentiate instances of types of **content** and attributes of the folders 250.

Each page 252 is a supporting structure of a folder 250. Each page 252 has a corresponding set of...the page has been visited by the user.

The state of the page is maintained even if the client system 130 disconnects and reconnects to the network I/O. This accommodates students in an e-learning **course** that are prone to periodically connect and disconnect to the interactive presentation on the network. The state of the page is determined by a cookie...the data item. In another embodiment, the XML and meta tags from the folders and pages are used to search for particular instances of **content** and attributes of the individual folders 250 and pages 252.

FIG. 14 is a diagram illustrating an embodiment of the table of contents. The table...elements of the interactive presentation via interface buttons and associated keystroke commands. Each button calls associated functions that instruct the interactive presentation to display specific **course** elements. Each button can have a corresponding keystroke interaction. Examples of interface buttons, their corresponding keystroke interaction, and associated function are as follows.

I

Button... ..page

Video region Key] or [PgDn] in sequence

Objectives Animation- Learning goals Calls a new window

5 button video region for the lesson (or containing **course**/lesson

Unit) objectives

Prerequisites Animation- Topics the Calls a new window

interface button video region student should displaying **course content**

know prior to conta' '

taking the lesson animations/text/table of

contents/progress bar

I 0 Supplementals Animation- Additional, in- Calls a new window

button video region depth containing supplemental

information on **course material** and

the topic marks the associated

entry in the table of

contents as "visited"

Job Aids Animation- Printable Calls a new window

button video region... ..1 5 Related Info Animation- Additional Calls a new window

button video region information from displaying Information

another part of related to the current

the **course** topic.

Progress bar Animation- Refer to "Dots in Shows progress of  
video region Progress Bar" **content** download (gray)

and progress of  
presentation (white)  
Dots in Progress Progress Bar [Left Arrow] Repeat this Rewind to the beginning  
20 Bar paragraph of the...element into the  
closed caption region.

Back Toolbar Back to Page Calls the last visited page  
"Unit-Page" based on student location  
"Title" in the **course**. (The  
history of student  
navigation activity is  
stored in an Array)  
Forward Toolbar Return to Page Calls a page of **course**  
"Unit-Page" **material** that a student  
"Title" has visited then "backed"  
out of (The history of  
student navigation  
activity is stored in an  
array)  
Go to Toolbar Important Links Drop-down menu with  
into "**Course** buttons that call specified  
Title" pages associated with.

### **Course Map**

Start of **Course**

First Technical Unit

Glossary Toolbar Open glossary Calls new window  
list containing searchable  
glossary of terms  
appearing in **course**

Bookmarks Toolbar Add/remove Allows student to revisit  
Bookmarks in bookmarks "bookmarker" **course**  
the Table of **material**. Assigns  
Contents pushpin graphic icon to  
window Table of contents entry  
corresponding to  
bookmark location with  
the **course** sequence.

Print Toolbar Print Text Dynamically  
concatenates and writes  
the text elements from an  
array associated with a  
specific page, inserts the  
animation title and...and Messages  
Closed Caption Font Size

3 5 Help Toolbar Display Help Drop-down menu,  
Window containing.

1. "Quick Start"
2. How to take the **course**  
**tutorial**
3. Product support
4. What's new
5. System requirements
6. License agreement
7. About TRA
8. www.tra.com

FIG. 15 is a flow...controls based on the student's user data. For example, if the user data indicates that a student does not meet the prerequisites for the **course**, the navigation display engine can ...preloading engine to accelerate the delivery of interactive presentation data to the client system 130. The interactive presentation data can include any form of webdeliverable **content** such as video, **audio**, animation, applets, static graphics, text, interactive **content**, Javascript, XML, HTML, Action Script, ...viewing and learning experience.

Different schemes have been developed to preserve the viewing experience of media over a network connection. One scheme combines the entire **course content** (animation, video, **audio**, page links, text, etc.) into a single media object. For example, FlashTm, Windows MediaTm, Real VideoTm, and QuickTimeTmforinats can be used to combine several different types of media assets into a single file. In some situations, by combining the text and animation media assets of page **content** into one single file or media object, the synchronization of the media assets can be preserved when delivered to the client system. However, the preservation...disrupting their e-learning experience. Specifically, to reconnect, the student must wait to establish a connection with the server, and wait for contents to buffer **before** the student can actually **view** the e-learning **content** via media stream. Furthen-nore, a multi-megabyte **course** delivered via media stream can be difficult for the student to interact with and navigate through because the contents are not cached, and therefore, the...nor for presentations that include interactive media. In particular, they are not suitable for e-learning environments that include several pages with multi-megabyte, interactive **content** because the user experiences a delay in viewing linked pages.

For example, consider an e-learning **course** distributed over a network. The **course** includes chapters, and each chapter includes more than one page - each displaying high volume media objects, and providing a link to the next page. When...intended form. As a result, there can be interruptions in the user's viewing experience and interactive experience. These interruptions are common to viewing such **material** over low and high bandwidth network connections.

According to an embodiment of the present invention, a hyper-download system 200 delivers interactive presentation data to a client system 130 in an accelerated manner

without the standard interruptions common to viewing such **material** over a low and high bandwidth network connections. The pre-loading engine 302 systematically downloads pages of the interactive presentation. The pre-loading engine delivers...by the user with a preference setting. As the page assets are delivered, a conventional browser can dynamically size its cache to the amount of **course content** delivered from the server 120 for the length of the user's e-learning session.

1 5 In one embodiment, the pre-loading engine 302 the user based on navigation and cookies files.

In another embodiment, the pre-loading engine 302 downloads pages to the cache sequentially from the **course** structure file based on the chapter and page numbers. In particular, the **content** section of the **course** structure file defines the logical structure of pages for the pre-loading engine to deliver. For example, when a user accesses a particular **course** section or **course** page number, the pre-loading engine delivers the page assets of the logically subsequent page, and logically previous page. However, this changes in response to user navigation. In the event that the user deviates from the sequential order of the **course** before the page has been downloaded, the pre-loading engine 302 aborts the download of the current page, calls the selected page from the central...the hyperdownload system anticipates the user is going to access in future navigation events.

By pre-loading anticipated pages, the browser can display multi-megabyte **course content** files without the standard interruptions common to viewing such **content** over low and high bandwidth network connections. Specifically, the anticipated pages are accessible from the client system and can be ...of the page 302 While page assets are delivered, a watcher program monitors the progress of the delivery of any Flash files (or any media **content**) 1 5 associated with the page. The pre-loading engine ensures that the current page is completely loaded before pre-loading resumes delivery of the page. In conventional browsers, navigation files can increase page navigation performance. Navigation files can instruct the browser how to display and navigate the HTML **content**. If the hyper-download system determines that navigation files are used, the navigation files are delivered 306-4 to the client system 130. After the **course** structure file that the pre-loading engine delivers to the client system.

FIG. 17 is a flow diagram describing the steps of the hyper-download...pre-loading engine determines a priority scheme for priority delivery of certain page assets of the anticipated page. The priority scheme is determined based on **content** type.

According to one embodiment of the invention, the pre-loading engine delivers XML, JavaScript and HTML page assets before delivering any other page asset...system. For example, the delivered XML page assets cause the hyper-download system to replace any XML reference links in the current page of the **course** structure file.

The XA4L data for each page supplies a list of the assets (reference links) to be downloaded for each page. The XML tag reference links in the current page of the **course**

structure file are replaced with the actual XML data of an anticipated page.

The reference links are similar to location pointers that link to information first priority status to specifically to XML data in an anticipated page. For example, the **course** structure file includes reference links to XML data of an anticipated page. The hyper-download system replaces the XML data reference links in the **course** structure file with the corresponding XML data of the anticipated page. For illustrative purposes only, a diagram depicting an XML data reference link in the **course** structure file is shown in FIG. 18, it is understood that the XN4L data provided are examples only and the XML can be scripted in any manner depending upon the particular implementation.

The **course** structure file includes an XML reference link that reads

"XML

script

c3.XML" />. The XML reference link is replaced in the client system... ..the anticipated page. FIG. 19 is a diagram depicting the corresponding XML data of the anticipated page that replaces the XML reference link in the **course** structure file. FIG. 20 is a diagram illustrating the resulting XML data in the **course** structure file. Specifically, FIG. 20 shows the XML data in the **course** structure file after it is replaced with the actual XML data of the ...By only including XML data references to other pages, the pre-loading system preserves client system resources. Specifically, the amount of XML data in the **course** structure file is reduced because only aliases are included that reference XML data of anticipated pages. Examples of client system resources that can be preserved...The HTML data can be delivered to the client system cache 130-2, or to the client system memory 130 Specifically, a reference in the **course** structure file to the HTML data of the anticipated page is replaced with the actual HTML data of the anticipated page. By only including HTML references or aliases in the **course** structure file, the ...assets are delivered before any other page asset in the anticipated page. The pre-loading engine delivers JavaScript to the corresponding JavaScript location in the **course** structure file. Specifically, the anticipated page JavaScript script location in the **course** structure file is replaced with the actual JavaScript script in the anticipated page in the client system memory 130-4 or the client system cache...location 130

When the pre-loading engine completes delivery of the media files, the hyper-download system returns to step 316 and delivers the priority **content** of the next anticipated page. Specifically, this cycle continues until a navigation event is detected or until the assets of a certain number of anticipated...in addition, XML, JavaScript or HTML data associated with page assets that have been delivered to the client system cache can be removed from the **course** structure file stored in memory. In particular, since the page assets have already been delivered to the client system, the pre-loading engine can remove their references from the **course** structure file to prevent the pre-loading engine from attempting to deliver those page assets to the client system again.

FIG. 21 is a diagram presentation product, and in particular, an e-learning product. The e-learning product can be used to create an e-learning **course**.

The authoring environment 320 includes a media management module 322 and a builder

module 324. The media management module 322 and builder module 324 include...modules and databases.

FIG. 22 is a diagram illustrating an embodiment of the authoring environment 320 of FIG. 21. The authoring environment provides a **course** media element (CME) application 330 and an x-builder application 340. The CME application 330 manages a master **content course** structure database 330. An x-builder application 340 manages a common files database 330 and an ancillary 350-2 **content** database.

The CME application 330 develops and stores a new **course** project. FIG. 23 is a flow diagram describing the steps of the CME application. At step 362, the CME application 330 creates a new **course** project for an interactive presentation. At step 362, the CME application 330 defines a **course** structure for the interactive presentation. The **course** structure is organized in a hierarchical arrangement of course content. For example, the CME application 330 can provide a hierarchical arrangement using a table of contents structure. The table of contents structure can be organized by chapters, and the chapters can include pages.

At step 364, the CME application 330 provides **course material** for the **course** project. The CME application 330 stores individual pages with page assets in a master **content** library. At step 366, the CME application 330 attaches the applicable page assets to each page in the e-learning **course** structure. At step 368, time code information is inserted in the **course** script. The time code information synchronizes the media elements and the closed captioning text of the interactive presentation.

For example, if the interactive presentation contains... animation, the closed captioning text is displayed on the user interface in synchronization with the animation. If the interactive presentation contains closed captioning text and **audio**, the closed captioning text is displayed in synchronization with the **audio**.

FIG. 24 is a diagram illustrating the interface of the CME ...and font size, font color, and font types. For example, a template can include a style sheet that defines the features of an e-learning **course**.

FIG. 26 is a diagram ...of the interactive presentation interface.

The time-coder can be used to synchronize particular frames of the interactive presentation that include closed captioning text. A **course** developer can indicate a time code for a particular frame by placing a cursor on the character position of the closed captioning text when the...the text 510 and animation of an interactive presentation. When the time coding information has been inserted, the time coding information for the **course** project can be imported into the x-builder application 350. The x-builder application compiles the **course** project into the interactive presentation. FIG. 27 is a flow diagram describing the steps of the x-builder application. At step 530, the x-builder application 340 creates a new interactive presentation project.

At step 532, the x-builder application 340 imports the **course** project from the 330 **content** and **course** structure database 330 to the common files database 330. The x-builder application imports **content** from other modules in the authoring environment. For example, the x-builder application 340 can import **content** from the ancillary **content** database 350.

The x-builder application **content** editor 350 manages the **content** stored in the ancillary **content** database 350. The x-builder application **content** editor 350 is a component application of the x-builder application 340. The ancillary **content** database 350-2 stores reference **content** such as templates, glossary assets, definitions, hyperlinks to web sites, product information, and keywords. For example, the reference **content** can include definitions for technology keywords in an e-learning **course** with technology subject matter. The x-builder **content** editor 350 maintains the integrity of the reference **content** stored in the ancillary **content** database 350.

When the x-builder application 340 imports **content**, such as page assets from the master **content** and **course** structure database 330 and reference **content** from the ancillary **content** database 350-2, the x-builder application 340 creates a distinct set of **content** for an interactive presentation project. The x-builder application 340 imports the **content** and stores the **content** in an interactive presentation product 5 build directory on the common files database 330. By importing the **content** to the product build directory, the x-builder application 340 can isolate the **content** from

any changes made to master **content** and **course** structure database 330.

The x-builder application 340 creates a dictionary for any key terms included in the imported **content** from the master **content** and **course** structure database 330 and the ancillary **content** database 350. The dictionary can be a partial dictionary or ...terms used in the new interactive presentation project created by the x-builder. The complete dictionary includes all terms that are stored in the ancillary **content** database 330. The ancillary **content** database 330-2 can include terms from other interactive presentation projects. For example, the ancillary **content** database 330-2 can include approved technology terms from a previous technology related e-learning **course**.

At step 534, the x-builder 340 selects a template suite. The x-builder application 340 can select a template suite for the interactive presentation. ...At step 538, the x-builder application 340 executes the exception-based autohyperlinking system. The exception based auto-hyperlinking system can generate hyperlinks linking specific **content** in the interactive presentation project to glossary definitions or similar subject matter.

According to an embodiment of the present invention, the exception based autohyperlinking system...the x-builder application 340 imports the time coding information from the CME application. At step 542, the x-builder application 340 constructs the individual **course** pages based on templates. At step 544, the x-builder application 5340 outputs the interactive presentation in HTML format.

FIG. 28 is a diagram illustrating the x-builder interface displaying the

organization of imported **content** stored in the common files database 330 The **content** stored in the common files database is organized by table. The tables within the database are linked together through the use of identification number fields. The tables organize the **course content** by class. Each table has a name identifier. It should be understood that the tables can have any name.

A PJCOURSE table 610 stores **content** for the e-learning **course**. This **content** consists primarily of the script and the graphic for any given page in the **course**.

There is one set of records in PJCOURSE table 610 for each page in the **course**.

Within this set ...keyword "Local Area Network". These keywords link to the same definition in a PJREF table 630. The PJREF table 630 stores the body of the **content** for definitions, and for other **content**.

The PJKEYWORDS table 620 and the PJREF table 630 are primarily used for storing glossary-type data, but are also used to store other **content** that is hyperlinked into the e-learning **course**. For example, the tables can store information about a keyword that can be hyperlinked into an e-learning **course**. Whenever the keyword is mentioned in the e-learning **course**, a link provided to a specific page that describes that keyword,

A PJCONTENTTYPE table 640 stores information on **content** types that are utilized in a particular interactive presentation project. Typical **content** types are "Glossary", "XYZ company product terms" and any other specific type of data that is used in the exception-based auto-hyperlinking system...table 670 is a utility table used to store all the hyperlinks created during the build of a product. It is used only for reference **content** and debugging.

A PJALINKS table 680 stores data for the "see also" links in the product. For example, the term "router" can be used in... "See Also" link can appear at the bottom of the page for "LAN".

FIG. 29 is a diagram illustrating the interface of an x-builder **content** editor 350 interface. The x-builder **content** editor 350 provides the user interface for manipulating reference **content** stored in the ancillary **content** database 350 The x-builder **content** editor 350 can add, edit, delete and approve reference **content** that is stored in the database.

FIG. 30 is a diagram illustrating an embodiment of the x-builder application 340 interface. The x-builder application...exercise to be used, such as dichotomous, multiple choice, multiple select, matching, and ordered list. The HTML header tags can define the XML **course** structure file, and an XML table of contents. The HTML header tags can define new pages, such as the beginning and ending of pages. The...the interactive presentation product.

15 An XML parser 746 parses the XML data, such as XML data page assets, and builds an interactive presentation **course** structure file in memory. The XML parser processes the

XML data and renders it into a format that the browser requires. The browser includes functions...A page navigator 750 handles page navigation through the interactive presentation. A table of contents handler 752 provides table of contents navigation based on the **course** structure file. A Flash interface handler 754 setups the primary Flash interface. A synchronization and navigation handler 756 loads animations with the status bar, and ...XML player with an index file. The index file initiates the XML player by pointing it at the XML data. This launches the interactive presentation **course**.

FIG. 35 is a diagram illustrating an embodiment of FIG. 32. According to an aspect of the present invention, the document 780 includes a table...to those of ordinary skill in the art that, as used herein, "interactive presentation" can be broadly construed to mean any electronic simulation with text, **audio**, animation, video or media asset thereof directly or indirectly connected or connectable in any known or later-developed manner to a device such as a...

### Claims:

1. A system for delivering **content** over a communications network, comprising:  
an interactive presentation having a plurality of pages;a pre-loading engine requesting a priority delivery of a page asset I wherein the interactive presentation references the page assets of the plurality of pages in a **course** structure file. 1 5 5. An electronic learning system for implementing a learning environment over a communications network, the system comprising:an interactive presentation having ...exercise, a multiple select exercise, and an ordered list exercise.

16 The method of Claim 14 wherein the markup language document is one of. a **course** structure file, and a table of contents.

17 The method of Claim 14 wherein the markup language ...in the markup language document based on the table.

26 The method of Claim 14 wherein the markup language document is one of. a **course** structure ...multiple select exercise, and an ordered list exercise.

39 The system of Claim 34 wherein the markup language document is at least one of. a **course** structure file, and a table of contents.

40 The system of Claim 34 wherein the markup language document is part of an interaction presentation.

41...presentation page on a user interface;the interaction template object displaying the at least one object with an interactive exercise.

50 A method of delivering **content** over a communications network, comprising:  
determining a navigation event in response ...selection based on the first selection;  
and sending data corresponding to the anticipated navigation event of the second selection. 5 1. A method of delivering **content** over a communications network in response to a selection, comprising:sending data corresponding to a first selection to a

cache location if the data corresponding...for implementing an electronic learning environment over a communications network, the system comprising: a database having stored therein, a plurality of data objects; a **content** creation station for developing an interactive presentation by selecting an arrangement of the data objects stored in the database; 15 a server, in connection with the **content** creation station, for storing the interactive presentation; a client system accessing the interactive presentation from the server; and a delivery system to deliver ...text data object; a media data object; a markup language data object; and a scripting data object.

54 The system of Claim 52 wherein the **content** creation station for developing- an interactive presentation further comprises: a media management module for organizing an arrangement of the plurality of data objects stored in...implementing an electronic learning environment in a distributed computer system, the system comprises: a database having stored therein, a plurality of media objects; and a **content** creation station for selecting an arrangement of the media objects from the database, for each selected arrangement of the Media

**Dialog eLink:** Order File History  
 7/K/46 (Item 8 from file: 349)  
 DIALOG(R)File 349: PCT FULLTEXT  
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### English Abstract:

...methods for conducting electronic commerce using electronic tokens are described. The electronic tokens are issued and maintained by a micropayment service provider (60). Tangible goods, **content** or services offered by member vendors (55) can be purchased or rented using the electronic tokens. A vendor and a user (50) security means is provided to prevent unauthorized use of the user's account to purchase **content**, to prevent unauthorized downloading of **content** from a vendor web site and to prevent unauthorized change of transaction data. Settlement of payments between the micropayment service provider and the vendor is...

### Detailed Description:

...August 09, 2001.

### Field of the Invention

[00021 This invention relates generally to systems and methods for conducting electronic commerce transactions

requiring micropayments to purchase **content**, goods, or services. More specifically, the present invention provides systems and methods for purchasing digital **content** with ease and in a safe and private manner without incurring high transaction costs.

#### Background of the Invention

[00031 The Internet and the World Wide...connection is used to download data representing a web page from the web server to the user's Internet appliance. Web pages may contain text, **audio**, graphics, imagery, and video, as well as nearly any other type of **content** representation that may be experienced through use of a computer or other electronic device.

Additionally, web pages may be interactive, and may contain user selectable...At present, many of the fastest growing web sites in terms of users are electronic commerce ("e-commerce") web sites that offer a variety of **content**, services, and tangible goods for sale. Such **content** includes, but is not limited to, newspaper articles, music, movies, games, video, and software, or ...in electronic form. Examples of services offered for sale in e-commerce web sites include online technical support, medical and legal advice, and personal fitness **training**, among others. Tangible goods offered **online** range from books, clothing, food, and toys, to more expensive items such as art pieces, automobiles, homes, and furniture, or other goods that may be...currency must deal with a central organization, such as a bank. Further, such systems are not as easy for users to use for purchasing online **content** by simply clicking on a **content** URL. These systems require users to go through too many processes for a simple **content** purchase that may only cost a few cents.

[0014] Another approach that may be used to make electronic payments online for the purchase of tangible...auction sites, such P2P systems are used to transmit funds from the buyer to the seller. These systems are not suitable for readily purchasing online **content**.

(0016] Although there are variety of payment methods available for the purchase of tangible goods on e-commerce web sites as described hereinabove, these payment methods are not suitable for the online purchase of **content**. Unlike most tangible goods offered for sale

online, **content** is usually offered free of charge, bundled with other **content** in subscription-based models, or priced on a permanent use, rental use, per-use or per view basis. In addition to **content**, services such as online technical support may also be offered on a payper-use basis.

[00171 The price for each **content** item may sometimes amount to a few cents to a few dollars or even the equivalent of a fraction of a cent. These prices for **content** are much smaller than the typical fee associated with processing credit card transactions or with subscription based models. Hence these payments are referred to as... ..at

vendors' web sites, credit card payments, electronic currencies, and the various systems provided by Internet payment service providers described hereinabove.

[00191 The purchasing of **content**, tangible goods, or services requiring a micropayment using a credit card is not feasible because the ...handling the credit card dispute.

[00201 Using electronic currencies to pay for micropayment transactions is also not economically feasible since it requires that users and **content** providers rely on a central bank authority to exchange the electronic currency for real currency and vice-versa, and the transaction costs involved in the...may be bought, or to whom the electronic currency is sold. For example, it is not possible for an e-commerce vendor of tangible goods, **content**, or services, to agree with its users on payment terms for  
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electronic currencies, since the user must pay a bank or other third-party...different web sites.

[00231 In the case of music, for example, the user may also want to download one or several songs while surfing different **content** providers' web sites and may not necessarily want to commit to a subscription or to purchase an entire CD using the shopping cart. If a user needs to go through a check-out process, irrespective of using a shopping cart or not, such a process makes the purchase of **content** so inconvenient, tedious and time consuming so as to immediately discourage the user from continuing to purchase **content**.

[00241 Due to the difficulties in handling

micropayments for the purchase of **content** using credit cards, electronic currencies, or Internet payment service providers' systems such as the one proposed by RocketCash, most **content** providers that offer **content** for sale have adopted a subscription-based pricing model.

The subscription model typically charges each user a monthly, quarterly, or annual fixed fee, which is large enough to justify using a credit card for payment.

Examples of **content** providers that offer **content** to users based on subscriptions include The Wall Street Journal, of New York, NY, and EDGAR Online, Inc., of New York, NY. In addition to...to deal with micropayment transactions.

First, subscription-based models are extremely

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uneconomical and cost-prohibitive because each user may download an unlimited number of **content** items without being concerned about the cost of any given item since the subscription method does not restrict each user as to how much **content** they can download during the period of the subscription. Second, subscription-based models do not provide users the flexibility of purchasing **content** every now and then or from various **content** providers without having to subscribe to each and every **content** provider's web site. Users may not know in advance that they will use a given **content** provider's web site frequently enough to justify a large subscription fee and the time to register the subscription at the site.

[0026] And lastly, when downloading an unlimited amount of **content** based on the payment of a subscription fee, it is much harder to compensate intellectual property owners such as authors, publishers, and musicians because royalties cannot be readily apportioned to them based on one fixed fee. Even if the **content** provider desires to pay a royalty associated with each downloaded **content**, the **content** provider has limited means to readily identify the **content** and compute the associated royalty for payment to the intellectual property owner of the **content**.

[00271 To address the need for payment methods that can handle micropayment transactions efficiently, a number of systems focused on micropayment transactions

have been developed...so far  
have prevented micropayment transactions from becoming more prevalent on the web.

[00281 The system developed by Magex enables network operators to sell products, **content**, and services such as games, pay per view films and information services by providing a financial clearing service that supports micropayment transactions, advanced multi-currency...site, a user may download a music track, video game, or novel. A Magex logo on the vendor web site informs the user whether the **content** is protected within a Digibox@ container - a secure container to protect the file from piracy. To open the file, the user needs to create a a range of payment options, allowing the user to choose to pay-per-play, rent **content** for a set time, or make an outright purchase. However, the Magex system can only be used to purchase music and is limited to its proprietary MP3 encoding system for the user's computer. Users cannot **listen** to the music on any other MP3 platform such as an MP3 player. Users cannot purchase any other **content** in an open system format. Further, the purchase method relies on a shopping cart and a check-out process, which are not convenient for micropayment...is designed to support purchases costing less than a cent and it can be used by e-commerce web sites to charge for tangible goods, **content**, or services, through the simultaneous use of pay-per-click purchases, subscriptions, and advertising.

The protocol also can be used to make direct monetary payments...check, and money order payments.

[0034] The micropayment system provided by Clickshare eliminates this problem by letting users make micropayments online for the purchase of **content** at participating web sites listed on a web site maintained by Clickshare without having to first add funds to an account. Users must first register...all the other participating vendors by entering the user's name and password only once at each vendor's web site prior to purchasing a **content** item. The user can then subsequently purchase **content** items from the same web site without having to re-enter the user's name and password for every **content** item purchased. The most-trusted web site may be ...that it allows users to make purchases online without having to disclose their personal information to vendors.

This enables users to purchase a variety of **content** anonymously, without having to worry that their personal information will be used by the vendors for marketing or other purposes. Another advantage is that Clickshare aggregates all the **content** purchases made by the user with their Clickshare account so that ...purchase in the user's credit card may be higher than the purchase amount. This may impose an unnecessary minimum threshold for the price of **content** charged by vendors.

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(00361 In addition, Clickshare allows vendors to provide **content** volume discounts to users so that users may purchase a number of **content** items over a specified time period for ...drawbacks associated with using subscription-based models for micropayment transactions.

[0037] A further drawback of the Clickshare system is that once the user selects a **content** item for purchase, such as a newspaper article that can be viewed online, the Clickshare system records the transaction but does not signal the user that the **content** item has already been purchased if the user desires to view the same **content** item at a later time. As a result, users may incur numerous duplicate charges at their Clickshare account. Even though users can dispute the duplicate... ..transactions on the Clickshare web site, they have no way of preventing Clickshare from making the duplicate charges prior to purchasing multiple copies of the **content** items.

[00381 Additionally, the **content** items that are purchased are controlled by Clickshare rather than the **content** providers. Once their **content** items are purchased with a Clickshare account, **content** providers lose control of the **content** and have no way of knowing whether the **content** item has been tampered with **before** being **viewed** by the user at Clickshare's web site.

Clickshare's web site also does not provide any security mechanisms to lock the purchased **content** to prevent users from freely distributing the purchased **content** items to other users. If the URL corresponding to the **content** item is distributed to others, the user has no way of

knowing whether someone else will view the article for free or purchase the article with the user's account.

[00391 The system provided by Qpass eliminates the security problems of the Clickshare system by locking the **content** purchased to the user's Qpass account that may be opened by registering at a vendor's site. That is, once a user purchases a given **content** item, the URL corresponding to the **content** item may not be distributed to others without the user's account login information.

Users are required to provide their account login information every time **prior** to **viewing** a **content** item they had previously purchased. other features of the Qpass system that provide advantages over the Clickshare system include its ability to ...each user selecting a single language and currency to apply to Qpass purchases online, as well as its ability to prevent multiple charges on a **content** item that has already been purchased by the user.

[00401 The Qpass system is similar to the system provided by Clickshare in that it allows...a monthly basis. Users may also view their current account activity online on a web site maintained by Qpass that also contains links to the **content** items purchased.

Additionally, Qpass also offers volume discounts to users so that users may purchase a number of **content** items over a specified time period for a discounted price, such as articles offered at the archives of The New York Times, of New York system also suffers from the same drawback of the Clickshare system in that the **content** items purchased by users using their Qpass accounts are controlled by Qpass rather than the **content** providers.

That is, once their **content** items are purchased with a Qpass account, **content** providers lose control of the **content** and have no way of knowing whether the **content** item has been tampered with **before** being **viewed** by the is user. Further, the Qpass system also debits users' purchases once per month in their credit card so that if a user makes...purchase with the user's credit card may be higher than the purchase amount. This may impose an unnecessary minimum threshold for the price of **content** charged by vendors.

[0042] In addition, the Qpass system requires vendors to install a client on their web sites in order to offer the Qpass...the vendors to invest significant implementation time and effort to configure the micropayment system properly. The micropayment systems described hereinabove also gain control of the **content** items that are offered by the vendors once the items are .15 purchased by the users. There are also no micropayment systems that aggregate user... ..and charge the user's credit card only after a minimum threshold has been reached rather than once a month. Additionally, there are currently no **content** providers who allow users to purchase one or more **content** items seamlessly from different vendors without requiring users to login and perform a check-out process at each and every vendor site. In short, it... ..would be desirable to provide systems and methods for conducting micropayment transactions easily and seamlessly at multiple electronic commerce web sites to purchase tangible goods, **content**, or services.

[0045] It also would be desirable to provide systems and ...would be desirable to provide systems and methods for making micropayment transactions securely by preventing unauthorized use of a user's client computer to purchase **content** on a **content** provider's web site and unauthorized viewing, altering, or downloading of **content** from the **content** provider's web site.

[0047] It also would be desirable to provide systems and methods that enable electronic commerce vendors to price Internet **content** for pennies, a few ...to offer users the ability to purchase one article, publication, song, video game, movie, etc., without requiring users to pay a subscription fee to access **content**.

[0048] It also would be desirable to provide systems and methods that enable a user to purchase **content** that is priced at pennies, a few dollars, or even fractions of a penny without having to transmit credit or banking information for each and...bank or other financial organization to complete the micropayment transaction.

[0050] It also would be desirable to provide systems

and methods to enable a **content** provider to accept micropayments from a user's micropayment account without having to grant control of the **content** to the micropayment service provider or to install a micropayment service provider client on the **content** provider's web site.

[00511 It also would be desirable to provide systems and methods to enable users to manage their micropayment accounts by viewing and methods that permit a user the convenience to purchase **content** from different **content** providers without requiring the user to login or perform a check-out process at each and every **content** provider web site.

[00531 It further would be desirable to provide systems and methods that permit a user to easily access **content** that the user has already purchased, using an account summary, located at the web page of the micropayment service provider web site, without requiring the user to revisit the **content** provider's web page for that purchased **content**.

[00541 It further would be desirable to provide ...minimize the cost of each and every electronic commerce transaction.

[00551 It further still would be desirable to provide systems and methods that enable each **content** provider to compensate intellectual property owners such as authors, publishers, and artists their respective royalty for each and every **content** item that is sold on that **content** provider's web site.

#### Summary of the Invention

[00561 In view ...the present invention to provide systems and methods for conducting micropayment transactions easily and seamlessly at multiple electronic commerce web sites to purchase tangible goods, **content**, or services.

[00571 It is also an object of the present invention to provide systems and methods to enable users to make micropayment transactions at user's client computer to purchase **content** on a **content** provider's web site and unauthorized viewing, altering, or downloading of **content** from the **content** provider's web site.

[00591 It is also an object of the present invention to provide systems and methods that enable electronic commerce vendors to price Internet **content** for pennies, a few dollars, or even the equivalent of fractions of a penny, allowing such vendors the flexibility to offer  
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users the ability to purchase one article, publication, song, video game, movie, etc., without requiring users to pay a subscription fee to access **content**.

[00601 It is also an object of the present invention to provide systems and methods that enable a user to purchase **content** that is priced at pennies, a few dollars, or even fractions of a penny without having to transmit credit or banking information for each and...financial organization to complete the micropayment transaction.

[00621 It is also an object of the present invention to provide systems and methods to enable a **content** provider to accept micropayments from a user's micropayment account without having to grant control of the **content** to the micropayment service provider or to install a micropayment service provider client on the **content** provider's web site.

[00631 It is also an object of the present ...their accounts.

[00641 It is a further object of the present invention to provide systems and methods that permit a user the convenience to purchase **content** from different **content** providers without requiring the user to login or perform a check-out process at each and every **content** provider web site.

[00651 It is also an object of the present invention to provide systems and methods that permit a user to easily access **content** that the user has already purchased, using an account summary, located at the web page of the micropayment service provider web site, without requiring the user to revisit the **content** provider's web page for that purchased **content**.

(00661 It is a further object of the present invention to provide systems and methods that enable micropayment service providers to aggregate electronic commerce

transactions...each  
and every electronic commerce transaction.

[00671 It is still another further object of the present invention to provide systems and methods that enable each **content** provider to compensate intellectual property owners, such as authors, publishers and artists, their respective royalty for each and every **content** item sold.

[00681 These and other objects of the present invention are accomplished by providing systems and methods for conducting micropayment transactions easily and seamlessly on multiple electronic commerce web sites to purchase tangible goods, **content**, or services. The micropayment transactions are transactions in which the payment for the tangible goods, **content**, or services, is on the order of pennies, a few dollars, or fractions of cents, and much smaller than the typical fee associated with processing... ..of a software solution provided by a micropayment service provider ("MSP") that enables users to make micropayment transactions online for the purchase of tangible goods, **content**, or services on electronic commerce web sites using electronic tokens granted by the MSP or by an electronic ...tokens granted by the MSP are electronic authorizations that are accepted at all electronic commerce vendor web sites to allow users to purchase tangible goods, **content**, or services. Electronic tokens granted by an electronic commerce vendor are intended for user incentives and they are electronic authorizations that are accepted only at the specific electronic commerce vendor site(s) to allow users to purchase tangible goods, **content**, or services.

[00691 In a preferred embodiment, the systems and methods of the present invention involve three main software components: (1) a micropayment server; (2)...server enables users to easily open a micropayment user account with the MSP to store electronic tokens that may be used to purchase tangible goods, **content**, or services on electronic commerce vendor web sites that are specified by the MSP as authorizing users to make purchases using their micropayment account. The...each. For each article purchase worth \$0.1 the user will be granted an electronic token by the MSP to purchase the article on the **content** provider's web site. Users may also purchase tangible goods, **content**, or services using their

micropayment user account prior to adding funds to the account. In addition, the MSP may also grant users a signup bonus...electronic commerce vendors by the MSP so that electronic commerce vendor web sites may interface with the MSP's server while users are purchasing tangible goods, **content**, or services on the vendor web sites. The API enables vendors to easily provide micropayment services to users without having to install separate client...The micropayment server will debit the user's account balance for the price of the news article the user purchased. It will also aggregate all **content** items sold by that news web site to all users and make a payment via the news **content** vendor's bank, less a service charge, to the news **content** vendor when a threshold, either by amount ...offer electronic tokens as a payment method;

[00931 FIG. 14 is an a flow chart for invoking the micropayment vendor API function calls when a **content** item is being purchased by a user;

[00941 FIG. 15 is an illustrative vendor web page listing links of **content** items that may be purchased by users;

[00951 FIG. 16A is an illustrative hyperlink for a **content** item that may be purchased by a user using electronic tokens;

[00961 FIG. 16B is an illustrative Javascript function for starting a micropayment transaction at on a vendor web page to purchase a **content** item;

[00981 FIG. 17B is an illustrative "login" window displayed to a user when the user clicks on a link on a vendor web page to purchase a **content** item and the user has not yet logged in with the micropayment service provider;

[00991 FIG. 18A is an illustrative micropayment vendor API function **content** item being purchased by a user;

[01011 FIG. 19 is an illustrative view of the parameters passed by the micropayment vendor API function calls shown... ..to the micropayment web server;

[01021 FIG. 20 is a schematic diagram of a vendor's web site that accepts electronic tokens as payment for **content** items offered for sale on the web site;

[01031 FIG. 21 is a schematic diagram showing steps taken by a user when purchasing **content** items using tokens at multiple vendor web sites;

[0104] FIG. 22 is a schematic diagram showing system processes that take place when a user purchases **content**

items using tokens at a vendor web site;

[01051 FIG. 23 is a flow chart for purchasing tokens or adding funds to a micropayment account;

[01061 FIGS. 24A, 24B, 24C, and 24D are flow charts for purchasing **content** securely to validate the vendor and **content** URL address, to preserve the integrity of the

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transaction data and authentication of the user, and to prevent unauthorized viewing or downloading of **content**;

[01071 FIG. 25 is an illustrative window for adding funds to the user's micropayment account when the account has insufficient funds for purchasing a tangible good, **content**, or service at a vendor web site;

[01081 FIG. 26 is a schematic diagram showing steps taken by a user when purchasing tangible goods or...and FIG. 29B are flow charts illustrating the aggregation of royalties to compensate authors, publishers, artists or other intellectual property owners for all vendors selling **content** and the settlement of payments to **content** authors, publishers, artists or other intellectual property owners by the MSP when settlement thresholds, either by amount or by time, are reached.

#### Detailed Description of web

sites provided by electronic commerce vendor 55 to purchase tangible goods, **content**, or services using electronic tokens issued by micropayment service provider 60. Electronic commerce vendor 55 may be a **content** provider such as The Washington Post, of Washington, DC, an online store such as Amazon.com, of Seattle, WA, an online services provider such as...Electronic tokens are electronic authorizations granted by MSP 60 that are accepted at electronic commerce vendor 55 to allow user 50 to purchase tangible goods, **content**, or services using electronic tokens as a payment method. User 50 may purchase electronic tokens directly from electronic commerce vendor 55 or from MSP 60...MSP 60. The user interface enables user 50 to get a history of past and current transactions on his/her various accounts including links to **content** items purchased online, add funds to the accounts, dispute transactions recorded on the accounts, and select spending limits for the accounts, among other account activities...55 to manage its micropayment vendor account.

[01161 MSP 60 may also issue sign-up bonuses and incentives to user 50 for purchasing tangible goods,

**content**, or services with electronic commerce vendor 55.

In a preferred embodiment, sign-up bonuses are electronic tokens issued to user 50 at the time a... ..are electronic tokens issued to user 50 at the discretion of MSP 60 and/or vendor 55 to encourage user 50 to purchase more goods, **content**, or services with vendor 55 using the electronic tokens and services provided by ...55 web site. The micropayment API is described in more detail hereinbelow.

[01171 When user 50 clicks on a link corresponding to a tangible good, **content** item, or service to purchase, the micropayment API function calls are used to send vendor 55's credential information and transactions parameters to MSP 60...55 by MSP 60, vendor 55's password and URL, MSP 60 verifies to see if vendor 55 is authorized to sell a tangible good, **content** item, or service being purchased using electronic tokens. Once vendor 55's credentials are verified, MSP 60 then displays a "buy" window at user 50 Internet appliance. The "buy" window may display various transaction parameters including, for example, the **content** title, the price and the short description of the **content**. User 50 may click on a "buy" button that is also displayed on the "buy" window, to proceed with the purchase of the **content** item from vendor 55. The micropayment API function calls may also be used to lock the **content** item to user 50 to prevent user 50 from copying the **content** item's URL and sending it to other users without them having to pay for the **content** item.

[01181 When user 50 clicks on a "buy" button displayed on the "buy" window, MSP 60 verifies user 50's micropayment user account to...user 50 personal information to vendor 55.

[01191 In a preferred embodiment, when user 50 first logs in with MSP 60 prior to purchasing goods, **content**, or services online, MSP 60 encrypts user 50 login ID and writes the encrypted user ID into user 50 Internet appliance. The encrypted user ID...present invention operates is described. Users 65a-d are connected to network 70, preferably the Internet, for the purpose of purchasing or renting tangible goods, **content**, or services, from electronic commerce vendors 75a-c.

User 65a connects to Internet 70 using a personal computer, user 65b connects to Internet 70 using...game consoles and entertainment centers (not shown), or any other Internet appliance capable of connecting to Internet 70.

[0122] Users 65a-d purchase tangible goods, **content**, or services at web pages maintained at electronic commerce vendor web servers 75a-c using electronic tokens granted by micropayment server 80 maintained by MSP...each and every web server 75a-c who offers electronic tokens as one of the payment options for users 65a-d to purchase tangible goods, **content**, or services.

[0123] Micropayment server 80 also provides users 65a-d with micropayment user accounts to store electronic tokens that may be used to purchase tangible goods, **content**, or services on vendor web servers 75a-c that authorize users 65a-d to make purchases using their micropayment user accounts. The micropayment user accounts...vendor may manage its electronic token transactions.

[0124] When users 65a-d select electronic tokens as a payment option when purchasing or renting tangible goods, **content**, or services at web sites maintained by vendor web servers 75a-c, vendor web servers 75a-c connect to micropayment server 80 through Internet 70...provided by MSP 60. The function calls submit information about the vendors maintaining vendor web sites 75a-c as well as information about the goods, **content**, or services being purchased to micropayment server 80. The software residing within micropayment server 80 verifies the information submitted by the vendors, checks whether vendors 75a-c are authorized to sell tangible goods, **content** or services  
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using electronic tokens and checks whether users 65a-d have logged in with micropayment server 80, verifies the login information, and checks...web servers 75a-c. Upon receiving the authorization, vendor web servers 75a-c send and display a confirmation of the purchases and/or download the **content** to users 65a-d. This completes the micropayment transaction.

[0125] Referring now to FIG. 3, a schematic view of

the software components used in a...80 enables users to easily open a micropayment user account with MSP 60 to store electronic tokens that may be used to purchase tangible goods, **content**, or services on electronic commerce vendor web sites that are specified by MSP 60 as authorizing users to make purchases using their micropayment user account...of currencies such that a given number of units of a real currency will correspond to an electronic token. Users may also purchase tangible goods, **content**, or services using their micropayment user account prior to adding funds to the account. In addition, MSP 60 may also grant users a signup bonus goods, **content**, or services from the vendors. The databases also store the royalty amounts due to the **content** authors, publishers, artists or other intellectual property owners.

[01281 Micropayment account user interface 8S enables users to verify and manage their micropayment user account activity...electronic commerce vendors by MSP 60 so that electronic commerce vendor web sites may interface with micropayment server 80 while users are purchasing tangible goods, **content**, or services on the vendor web sites. In a preferred embodiment, micropayment API 90 contains Simple Object Access Protocol ("SOAP") function calls that are called by vendors to invoke the services provided by MSP 60 when a user clicks on a link corresponding to a **content** item, tangible good, or service that is available for purchase.

The SOAP function calls are included in the web pages designed by the vendors (using...Database server 110 also manages settlement of payments among users, vendors, and the operator of micropayment server 80 as well as settlement of payments to **content** authors, publishers, artists, or other intellectual property owners.

[01351 User account number/vendor ID/transaction ID 115 contains indexes for the user account number, i goods, **content**, or services from a vendor's web site who offers tokens as a payment option. The registration may be done through a vendor web site...charges or utility bills. In this case, a user is given a certain credit line by the ISP or utility company to purchase tangible goods, **content**, or services, and to allow the user to pay for the purchases

later upon receiving the monthly invoice. A user may use more than one...information that allows the operator of micropayment server 80 to provide services to each vendor. Vendor database 125 may also include a sales record and **content** royalty amount for payments to **content** authors, publishers, artists, or other intellectual property owners, for **content** sold by vendors.

[01411 Transaction database 130 contains all transactions between user and vendors for the user's purchases of tangible goods, **content**, or services from vendors as well as all transactions between users and the operator or micropayment server 80 for user's purchasing of tokens from...amount of tokens through the vendor web site again, to encourage vendor's marketing initiatives.

Furthermore, vendor record 200 also includes all sales records and **content** royalty amounts due to **content** authors, publishers, artists, or other intellectual property owners.

[01501 Transaction database 130 contains multiple transaction records 205. Each transaction record 205 contains the ID of the user and the ID of the vendor  
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involved in the micropayment transaction as well as the transaction ID which includes **content** title or product ID, and the amount of the transaction among others. The amount of the transaction is recorded in the currency with which the...user transaction record 205 within transaction database 130.

(01511 The micropayment transaction includes user 50 purchasing tokens in a specific currency or purchasing tangible goods, **content** or services. The amount paid by is user 50 for tokens is added to aggregated total token sold record 210. This transaction for purchasing tokens is also recorded in the user account record within user record 195. When a user purchases tangible goods, **content** or services, the price the user pays at a specific vendor is added to vendor account record 220 for that vendor within the aggregated vendor sales record 215. Similarly, each time a user purchases tangible goods, **content** or services, the transaction is recorded in user record 195 and vendor record 200. Therefore, aggregated total token sales record 210 and vendor

account record 220 for each and every vendor aggregate the micropayment transactions, one for a user purchasing tokens, the other for a user purchasing tangible goods, **content** or services from a vendor. Furthermore, when a user purchases **content**, the amount of royalty due to the **content** author, publisher, or owner may also be recorded in vendor record 200. This royalty amount may also be added to the aggregated **content** royalty amount in  
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aggregated vendor sales record 220. Aggregated total token sales record 210 and vendor account record 220 will be stored in the...of tokens, as recorded in aggregated total token sold record 210 for such amount as recorded in aggregated vendor sales record 220 less the aggregated **content** royalty amount, also recorded in aggregated vendor sales record 220 to each is vendor's bank account 230a-b. This settlement of payment between the...sales record 220 is then updated to indicate "settled" with the date and time. Similarly, the operator of MSP 60 may make royalty payments to **content** authors, publishers, artists or other intellectual property owners, triggered by the amount or time threshold.

[01531 It is to be noted that the various databases... ...and transaction database 130 and others described herein are for the purpose of illustrating how user's information, vendor's information, various micropayment transactions and **content** royalty are recorded in ...micropayment server 80 will disconnect the user from the vendor web site.

[01551 In addition, the user may set spending thresholds for purchasing products or **content**, either the total amount per transaction, per session (time period from login ...The user may also set his/her spending threshold described to be applied to specific vendors only. If this is done, purchases of tangible goods, **content**, or services will be limited to one of the specific vendors listed. Also, the user will not be able to access and purchase any products or **content** from vendors that he/she does not specify. This feature allows parents, for example, to prevent children from purchasing undesirable products or **content** from vendors offering products or **content** not suitable for them.

[0157) Micropayment server 80 may also automatically

send email to the user ...is register with MSP 60. The sign-up bonus consists of sign-up tokens that may be used by the users to purchase tangible goods, **content**, or services on participating vendor web sites.

[01601 Users may download a user interface client by clicking on button 250 provided in the web page...as displayed in field 267. The screen also lists other services in field 268 that include links to access user information, incentives, spending limits, the **content** item the user purchased and a link to dispute a charge.

(0163] Referring now to FIG. 10, an illustrative view of a micropayment account user...to add funds to his/her account at link 275, view account statements at link 280, and access a screen showing a detailed history of **content** items the user  
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purchased, at link 285. A user can also access the same screen when he/she clicks on the hyperlink "My **Content**" in field 268 in FIG. 9. The "My **Content**" hyperlink displays a list of all **content** items the user purchased using his/her micropayment account. Similar to each **content** item displayed in screen 270, each **content** item displayed in the "My **Content**" hyperlink at link 285 includes the date, the title of the **content** item, and a URL link allowing the user to re-visit and access the **content** item he/she already purchased, without requiring him/her to go to the **content** web site again, if the **content** item has not expired. The **content** provider may choose to have the **content** item expire based on time or number of re-visits.

[01641 Referring now to FIG. 11, an illustrative view of a micropayment account user interface...their MSP.

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### III. Micropayment Vendor API

[01681 Referring to FIG. 14, a flow chart for invoking the micropayment vendor API function calls when a **content** item is being purchased by a user is described. The **content** item is accessible by a hyperlink on a vendor's web page, such as web page 405, shown in FIG. 15. At step 335, the user clicks on the hyperlink to purchase the **content** item, such as hyperlink 410 on web page 405 to purchase the digital song entitled "I'll Fly Away."

[01691 Referring now to FIG. 16A, an illustrative

hyperlink for a **content** item that may be purchased by a user using electronic tokens is described. Hyperlink 415 is ...activity on another Internet appliance.

[0170] When the user clicks on hyperlink 415, the vendor web server maintaining the vendor's web page where the **content** item is listed invokes Javascript function 420 to initiate the micropayment transaction between the vendor and the user through a micropayment service provider such as MSP 60, hosting micropayment server 80.

Javascript function 420 has parameter 425 to indicate the NN **content** ID" of the **content** item being purchased. The **content** ID of the "I'll Fly Away" song in this case is - 62

1500. Hyperlink 415 also contains **audio** file 435 corresponding to the song being purchased by the user.

(01711 Referring now to FIG. 16B, an illustrative Javascript function for starting a micropayment transaction at a vendor web site is described.

Javascript function 440 is used to submit **Content** ID parameter 425 to Application Server Page (ASP) 445 generated by the vendor web server. An ASP page is a dynamic web page generated by... ASP page itself or a database. ASP 445 may be an HTML, XML (or other technology) page that is used to retrieve information about the **content** item being purchased from ASP 445 or from a database is maintained by the vendor web server. The information retrieved by ASP 445 includes information about the **content** item such as its title, price, and description, expiration by time or number of access, as well as information about the vendor, among others.

[0172] Referring now to FIGS., 14, 16A, and 16B, at step 340, the vendor web server submits **content** ID parameter 425 to ASP 445, and at step 345, ASP 445 retrieves information about the **content**. The information retrieved is submitted at step 350 to MSP 60 via the Simple Object Access Protocol (SOAP) by calling micropayment vendor API function call 500, shown in FIG.

18A. Function call 500 is used to pass information about the vendor and the **content** item being purchased from the

vendor web server to micropayment server 80. At step 355, micropayment server 80 validates the vendor and **content** item information to see if the vendor is among the participating vendors authorized to sell tangible

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goods, **content**, or services to users using electronic tokens as a payment method.

[01731 Micropayment server 80 will then create a transaction ID for the transaction data...data on a "buy" window at the user's Internet appliance.

An illustrative "buy" window is shown on FIG. 17A. NX Buy window 450 contains **content** title 455, an optional brief description of the **content** 460, and **content** price 465 with buttons such as "Buy" (470), "Incentive" (475), and "Cancel" (480).

[01741 "Buy" button 470 may be selected by the user to purchase the **content** item using electronic tokens stored in the user's micropayment account. "Incentive" button 475 may be selected by the user to purchase the **content** item using an incentive token that has been granted to the user either by MSP 60 or by the vendor. If the user clicks on...been reached. If not, MSP 60 checks whether the user's micropayment account contains a sufficient number of tokens to make the purchase of the **content** item. If the user has logged in MSP 60 and he/she has enough tokens, micropayment server 80 encrypts the user ID with a time variant encryption key, opens a blank window on the user's Internet appliance with the URL address corresponding to the **content** item being purchased, and submits the encrypted user ID and **content** ID to the user's Internet appliance at step 370.

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[01771 The time-variant encryption ID is used to prevent unauthorized viewing, **listening**, or downloading of **content** items from a vendor web page. The time variant encryption ID changes at pre-determined time periods and it is used by micropayment server 80... user before sending the authorization to a vendor web server to authorize the purchase. This way a user will not be able to purchase a **content** item and send the URL corresponding to the **content** item to a friend so that the friend can view, **listen** to, or download the

**content** item freely. For example, if the user purchases a song and later e-mails the song's ...ID with the time-variant encryption key to the vendor web server. Upon receiving the encrypted user ID with the time-variant encryption key and **content** ID, the vendor web server will request an authorization from MSP 60 at step 380 so that the user's purchase may be authorized. At...server to authorize the purchase.

[01791 At step 390, the micropayment server checks to see if the vendor web server has previously decided whether the **content** item being purchased is to be locked to the user purchasing the **content** item so that no other user may access the **content** item without going through a similar micropayment transaction. If the vendor web server has previously decided to lock the **content** item being purchased, then at step 395, the vendor web server will invoke micropayment vendor API function call "Lock-Content" 505 shown in FIG. 18B to redirect the

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encrypted user ID and **content** URL address to MSP 60. MSP 60 will then decrypt the user ID and check whether the user has access to the **content** URL address. For a user to have access requires that the time-variant encryption user ID is valid, paid for the **content** item, the time period for which the **content** item is valid has not expired, and the number of accesses also has not been exceeded.

[01801 If the user has access to the **content** item, then MSP 60 authorizes the vendor web server to display or download the **content** to the user's Internet appliance at step 400. In case the user doesn't have access to the **content** item, MSP 60 may request the user to purchase the **content** again. The above **content** locking process prevents the vendor web server from displaying or downloading the **content** item even if the user copies the **content** URL address and encrypted user ID and sends them to a third party, because the time-variant encrypted user ID will have changed. If the page at the **content** URL address does not have a "lock **content**" option, then the vendor web server will display or download the **content** item to the user's Internet appliance.

[01811 Referring now to FIG. 19, a schematic view of the parameters of the micropayment vendor API function...MSP 60 containing information on the

vendor's micropayment account.

[0183] ContentTitle parameter 510c is the title the vendor would like to display for the **content** at the "buy" window opened to the user. Price parameter 510d lists the price the vendor would like to charge for the **content**. The price of the **content** also appears on the "buy" window displayed to the user. Content URL parameter 510e is the ContentURL the user will be redirected to after purchasing the **content** item. This parameter is also used to track if the user has already purchased the **content** item and should, therefore, be unique. IsPost parameter 510f tells micropayment server whether to use a "FormPost" or a "GetAction" on the **content** to which the user is redirected. Preferably, IsPost is set to FormPost so that the **content** parameters are not exposed to others. Lastly, Message parameter 510g is a variable that contains the response of micropayment server 80 conveying whether the micropayment transaction for the purchase of the **content** item has been authorized or not.

[0184] Additionally, API function call 500 may submit optional parameters 515a-h to micropayment server 80, including: (1) VendorContentID tracking purposes.

NumberOfTimesToView optional parameter 515b specifies the number of times that the user purchasing the **content** item is authorized to view the **content** item. AbsoluteExpTime optional parameter 515c lists the date and the time in GMT that a **content** item should expire.

NumberOfDaysToView optional parameter 515d lists the number of days for which **content** item is valid, and NumberOfHoursToView optional parameter 515e lists the number of hours for which the **content** item is valid.

[0186] IncentiveIDs optional parameter 515f is a string containing all of the valid IncentiveIDs associated with the **content** item. When all valid incentive tokens may be used against the **content** item, this parameter is left blank. If the parameter is set to "-1," then no incentive tokens may be used with this **content**. ShortDescription optional parameter 515g is a short description of the **content**. This parameter also may be shown on the "buy" window displayed to the user.

Lastly, OptionalData optional parameter 515h may be used for any optional data that the vendor would like to pass through to the **content** URL for internal tracking purposes.

[01871 It should be understood by one skilled in the art that additional parameters may be used by MSP 60 and the vendor web server to complete a micropayment transaction for the purchase of tangible goods, **content**, or services. It should also be understood by one skilled in the art that the micropayment vendor API may be  
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implemented using different technologies... ...the Micropayment Service Provider

[01881 Referring to FIG. 20, a schematic diagram of a vendor's web site that accepts electronic tokens as payment for **content** items offered for sale on the web site is described. As will be understood by one skilled in the relevant art, the appearance of web site 520 in FIG. 19 simply demonstrates key components that may be displayed at a **content** vendor's web site. The appearance of web site 520 is subject to artistic design by each and every vendor.

is [01891 The availability of tokens as a payment option for **content** is displayed by icon 525. Several **content** items are available for purchase, including **content** items 530a-c. Web site 520 also may include promotional windows 540 and 545, and various pop-up windows 548, as described hereinbelow. If a user clicks on one of the **content** items 530a-c, the systems and methods of the present invention make vendor web site 520 display pop up "buy" window 550, which contains the title, an optional brief description of the **content** item, and the price of the **content** item. Window 530 also may include "Incentive" button 555a, "Buy" button 555b and "Cancel" button 555c. If the user decides to purchase the **content** item, he/she can simply click on "Buy" button 555b. The user may decide not to purchase the selected **content**, in which case the user can select to click on "Cancel" button 555c.

[ ...MSP 60 the freedom to offer incentive tokens to users. Pop-up window 550 contains "Incentive" button 555a, allowing the user to pay for the **content** item using incentive tokens he/she may have in his/her micropayment

5 account with MSP 60. In case the user decides to pay for the **content** item using incentive tokens, he/she can click on "Incentive" button 555a and pop-up window 570 will be displayed in which the system requests...the user has enough tokens in his/her micropayment account. If yes, MSP 60 will authorize the vendor to sell and to display the published **content** item or download the selected **content** item.

Therefore, the present systems and methods of the present invention provide users the convenience of purchasing **content** from vendor web sites without requiring users to log-in or check-out at the vendor web sites. If the user does not have enough...then proceeds as for Case II above. This feature reduces the risk that a third party may use the user's Internet appliance to purchase **content** without the ...software displays a button 535 in a browser. When the user clicks button 535, the system will instantly display the summary of the user's **content** purchases during his/her log-in - 72 period or, alternatively, the last several transactions.

This summary includes the vendor's URL address, **content** title, cost, date, and time, as well as the user's remaining balance of available tokens in the user's micropayment account with MSP ...the user's Internet appliance the user's micropayment account report which includes all business transactions that have taken place, vendor name, product name or **content** title, cost, date and time and type of transactions, which includes the user's purchase, add funds, disputed transactions and customer credit. it also will...specific type of transaction.

[01951 It should be understood by one skilled in the art that the processes describe above for a user to purchase **content** items on a vendor web site also may be used to purchase tangible goods or services on other vendor web sites. Advantageously, the systems and methods of the present invention enable users to purchase **content** items, tangible goods, or services on multiple vendor web sites without having to disclose any personal or billing information to the vendor web sites.

[01961 Referring now to FIG. 21, a schematic diagram showing steps taken by a user when purchasing **content** items using tokens at multiple vendor web sites is described. FIG. 21 illustrates how a user may browse

multiple vendor web sites who accept tokens as payment and purchase **content** items freely and seamlessly without  
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having to log-in or log-out at each and every vendor web site. Note that user 560 may purchase **content** from multiple vendors 555a-c in any sequence. User 560 may also visit any particular vendor 555a-c more than once.

The systems and methods of the present invention, therefore, provide users the convenience of purchasing **content** items with micropayments at multiple vendor web sites without burdensome log-in and check-out processes at each vendor site.

[01971 In step 1), user 560 selects a **content** item for purchase at any of vendors 555a-c web sites using an Internet appliance, as he/she browses at various vendors 555a-c web sites. When user 560 clicks a **content** item displayed in one of vendors 555a-c web sites, the vendor web server sends the price of the **content** item user 560 ...560 Internet appliance sends the user ID to MSP 550, as shown in step 3). In step 4), MSP 550 subtracts the price of the **content** item from the user's micropayment account and authorizes the vendor web server for the user's purchase, as shown in step 5). In step 6), the vendor web server downloads the **content** item to the user's Internet appliance. In step 7), MSP 550 records the amount of royalty that the vendor needs to ...that took place.

Note that the above steps 2), 3), 4), 5) and 7) are transparent to the user. This completes the purchase of a **content** item from a vendor web site. User 560 may continue to purchase other **content** items from the same vendor or browse to look for other **content** items to purchase at other vendor web sites seamlessly.

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[01981 Referring now to FIG. 22, a schematic diagram showing system processes that take place when a user purchases **content** items using tokens at a vendor web site is described. In step 1), user S75 clicks at a **content** S hyperlink to purchase a **content** item at a vendor web site hosted at vendor web server 570. In step 2), vendor web server 570 sends transaction data, including but not limited to vendor ID, **content** ID, **content** URL address,

**content** title, an optional brief description of **content**, price, incentive token code (if applicable), time period for which the **content** item will be valid, and other parameters to MSP 565. In step 3), MSP 565 validates vendor and **content** top-level URL address to see if the **content** vendor is a ...of the transmission of the transaction data through a communication line to prevent unlawful alteration of the transaction data, such as changing the price of **content** by an Internet intruder.

To achieve this objective, upon receiving the transaction data from vendor web server 570, the present systems and methods cause MSP...565, as shown in step 5). In step 6), MSP 565 displays the transaction data on user 575 Internet appliance including but not limited to **content** title, the optional brief description, and price with "Incentive", "Buy", and "Cancel" buttons. Note that it is necessary for MSP 565 to send transaction data including the price of the **content** item and display it at user 575's Internet appliance. However, MSP 565 will be using the actual transaction data, including but not limited to the price is of the **content** item stored in its database (step 2) above) for validation of the transaction data before approving the micropayment transaction; therefore, it is difficult for a person to alter, for example, the price of the **content** item or other transaction data illegally.

[02011 In step 7), user 575 may click the "Buy" button to purchase the **content** item. If user 575 has incentive tokens in his/her micropayment account with MSP 565, user 575 may click the "Incentive" button to pay for the **content** item using incentive tokens. User 575 may decide not to purchase the **content** item after reading the brief description (optional) or simply decides not to go through with the purchase, in which case user 575 may click on...successful, MSP 565 encrypts the user ID with a time-variant encryption key, opens a blank window on user 575's Internet appliance at the **content** URL address and submits the encrypted user ID and **content** ID to user 575 Internet appliance. In step 9), user 575 Internet appliance in turn submits the encrypted user ID and **content** ID to vendor web server 570. Further, vendor web server will send the encrypted user ID and **content** ID to MSP 565, as shown in step 10).

[02031 In step 11), MSP 565 decrypts the user ID and

checks if user 575 has "access" to the **content** URL address. A user having "access" to the **content** URL address means that the user has logged in with MSP 565 and that the user's time-variant encrypted user ID is valid, the user paid for the **content** item, and all the other transaction data are valid. If yes, MSP 565 sends authorization to vendor web server 570. In step 12), vendor web server 570 displays and downloads the **content** item to user 575 Internet appliance. In step 13), MSP 565 records the amount of royalty that the vendor needs to pay MSP 565 for... ...steps 2), 3), 4), 5), 8), 9), 10), 11) and 13) are transparent to user 575. This completes the micropayment transaction of a user purchasing **content** from a **content** vendor web site.

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[02041 The processes described in FIG. 22 above provide security means for unauthorized downloading of **content** items from a **content** vendor web site and prevent unauthorized alteration of the transaction data by an Internet intruder. The royalty rate that the operator of MSP 565 charges to the vendor allowing user 575 to purchase **content** items using tokens may vary from one vendor to another vendor depending on the amount of **content** items sold by a vendor within a pre-determined period of time.

[02051 In yet another embodiment of the present invention, the system maintains transaction records in its transaction database 130 (FIG. 4). The settlement of paying vendors for tangible goods, **content**, or services is sold or rented to users occurs when it is triggered by one of two events.

[02061 First: The amount to be paid...to attract users to purchase more tokens.

[02121 The incentive tokens issued by a vendor to such users can be used to purchase tangible goods, **content**, or services from the issuing vendor only. The incentive ...MSP, as well as the amount, date and time of purchase.

[02141 Referring now to FIGS. 24A, 24B, 24C, and 24D, flow charts for purchasing **content** securely to validate

the vendor and **content** URL address, to preserve the integrity of the transaction data and authentication of the user, and to prevent unauthorized viewing or downloading of **content** are described. A user browses to a **content** vendor web site, step 655, and clicks at a **content** hyperlink to purchase the **content** item. This causes the vendor web server to pass transaction data, including but not limited to vendor ID, **content** ID, is **content** URL address, **content** title, optional brief description of **content**, price, incentive token code (if applicable) and time period for which the **content** item will be valid, to the MSP, as shown in step 660.

[02151 In step 665, the MSP validates the vendor and **content** top-level URL address to see if the **content** vendor is a member vendor registered with the MSP to offer electronic tokens to users as a payment method.

The MSP then ...675.

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[02161 In step 680, the MSP displays a window on the user's Internet appliance containing transaction data including but not limited to **content** title, optional brief description of **content**, and price of the **content** item with "Incentive" (if applicable), "Buy" and "Cancel" buttons. If the **content** item is purchasable using an incentive token either issued by the **content** vendor or by the operator of the MSP, the user may click on the "Incentive" button to pay for the **content** item using incentive tokens that the user has in his/her micropayment account with the MSP, as shown in step 685.

In step 690, the...After the user enters the incentive code, step 695, the user may click on the "Buy" button, as shown in step 700.

[0217] If the **content** item is not purchasable using an incentive token, the systems and methods of the present invention will not display the "Incentive" button at the display clicks on the "Cancel" button, the displayed window will be closed and the user's Internet appliance will go back to display the **content** vendor web pages as shown in step 705.

[02181 If the user clicks on the "Buy" button, the MSP

will validate, in step 710, the... ..an error message at the user's Internet appliance, step 725, and the user can close this error message window and go back to the **content** vendor web ...Note that the systems and methods of the present invention enable a user to log-in with the MSP only once and to browse several **content** provider vendor web sites to purchase **content** items from different vendor web sites without requiring the user to log-in or check out at each and every vendor web site. However, in order to prevent unauthorized use of the user's Internet appliance to purchase **content**, the user will be required to log in with the MSP again after a pre-determined time period is reached either from the time the user logged in or from the time the user made the last **content** purchase, whichever the user has chosen.

[0220] If the user has not logged in or the time since the user logged in has expired, the...invite the user to register with the MSP, step 755, and close the window allowing the user's Internet appliance to return to display the **content** vendor web pages.

[0221] Since the user only needs to login with the MSP, and that entering of user ID and password take place between...step 760. If not, the MSP informs the user that his/her spending limit threshold has been reached and terminates the user's purchasing of **content**. This is another security measure provided by the present systems and methods as invented to protect the user from unauthorized use of the user's...the spending limit threshold, the MSP will proceed to check if the user has enough tokens in his/her personal account to pay for the **content** item, as shown in step 765. If yes, the MSP encrypts the user ID with a time-variant encryption key and opens a blank window on the user's Internet appliance with the **content** URL address and submits the encrypted user ID and **content** ID to the user's Internet appliance, as shown in step 770. In step 775, the user's Internet appliance then submits the encrypted user ID and **content** ID to the vendor web server. Note that only the encrypted user ID with the time-variant encryption key for the user and no other... ..is sent to the vendor web server. This preserves the anonymity of the user from the vendor.

[0224] The present systems and methods permit the **content** vendor an option to "Lock **content**" to prevent

unauthorized downloading of **content** by a third person.

This unauthorized downloading of **content** is possible, if the user copies the **content** URL address and encrypted user ID and sends it to ...becomes invalid when the time expires.

Therefore, the systems and methods of the present

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invention reduce the risk of unauthorized viewing or downloading of **content** from the **content** vendor web page.

(02251 In step 820, the vendor web server checks to see if the **content** URL address has the "Lock **Content**" option. If yes, the vendor web server sends to the MSP the encrypted user ID and the **content** URL address, as shown in step 825. The MSP decrypts the user ID, step 830, and checks to see if he/she has "access" to the **content** URL address, as shown in step 835. The user has "%access" to the **content** item if the user ID is valid (i.e., the time-variant encrypted user ID has not changed), paid for the **content** item, the time period for which the **content** is valid has not expired, and the number of times to access the **content** item is not exceeded.

[02261 In step 845, if the user has no "access" to the **content**, the MSP will check if the **content** URL includes the **content** ID. If yes, the process goes to step 660 (FIG. 24A), as described earlier. If no, the MSP displays an error message and terminates the process, as shown in step 855. In step 840, if the user has "access" to the **content**, the MSP sends authorization to the vendor web server and in step 850, the vendor web server sends or downloads the **content** to the user's Internet appliance.

[02271 Referring again to step 820, if the **content** URL address does not have the "Lock **Content**" option, the vendor web server will display or download the **content** item to the user's Internet appliance as previously described in step 850.

[02281 Referring again now to step 765 (FIG. 24B), if the user does not have enough tokens to make the purchase of the **content** item, the MSP will request the user to

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purchase additional tokens (or add funds) to the user's micropayment account, as shown in step...85 (FIG. 3) for the user to add funds to his/her micropayment account; and

[02321 Choice 882c: The user may cancel the purchase of **content**.

[02331 Referring back to FIG. 24B, if the user agrees, in step 800, the MSP charges the user's credit card or debits the user... ..of the new tokens the user purchased. These new tokens the - 86

user purchased are in the currency indicated in the price of the **content** item.

[02341 In step 805, the MSP updates the user's account balance to reflect the new tokens purchased, in user record 195 in user...will display and inform the user that he/she needs to purchase more tokens (add funds) to his/her account in order to purchase the **content** item, as shown in step 810.

is [0235) FIG. 24D describes an alternative method by which a third person may purchase the **content** item that a user previously purchased. In step 875, a third person (a new user) receives the **content** URL address from someone who has already purchased the **content** item using the present system and methods. A new user may enter the **content** URL address in the browser or click on the **content** URL address in the email the new user received, as shown in step 880. The user's Internet appliance submits the encrypted user ID and **content** ID to the vendor web server as described in step 775 (FIG. 24B).

The process will then take place as described earlier.

If a new user is already registered at the MSP, he/she can then proceed to purchase the **content** item, however, the new user will be required to pay for the **content** item using tokens in his/her account because the encrypted user ID the new user received has a time variant encryption key and it will...process to settle payment for tangible goods being purchased works reasonably well, this method of business transaction is not suitable for a user to purchase **content** on the Internet for the following reasons.

[0247] First: when a user selects a **content** item (e.g., article, publication, music, software, movie) for purchase, he/she prefers to have the **content** item downloaded into his/her Internet appliance and have the convenience to be able to browse other vendor web sites - 91

for other **content** without having to perform a "log-in't and a "check out" process at each and every vendor's web site.

[02481 Second: a user... ..and read at his/her Internet appliance display screen after he/she browses several other vendor web.sites, without having to pay for the same **content** again.

[02491 Third: the cost for each **content** item is usually so small, on the order of few cents or dollars, that the cost for payment of **content** using a credit card does not justify such purchases.

[02501 Fourth: the process of using a shopping cart for purchases that total only pennies, a... ..is not practical.

[02511 The other embodiments of the systems and methods described hereinabove with reference to FIGS. 20 provide users the convenience for purchasing **content** at multiple **content** vendor web sites without requiring log-in and check-out at each and every web site.

[02521 Referring now to FIG. 28, a flow chart...the present invention permit users to dispute any transaction they have conducted. Typical reasons for a dispute would be a problem downloading or accessing purchased **material** or an inadequate description or representation of the **content** such that the user purchased it and realized that it did not contain what ...including the vendor's logo and a link to the vendor' s mailing list sign-up page.

[02661 In another embodiment of the present invention, **content** authors, publishers or other intellectual property owners accrue royalties whenever users purchase **content** from each and every vendor web site that is authorized by MSP 60 to use tokens as a user's payment option for **content**. Since the price for each **content** will normally be very small, requiring micropayments such

as that described in the methods and systems of the present invention, the compensation to be paid to such **content** authors, publishers or other intellectual property owners will be even smaller, perhaps, in the range of the equivalent of a fraction of a penny. This requires aggregation of micropayments. The **content** royalty amount is entered into vendor record 200 (FIG. 6) at the same time an electronic transaction is recorded in transaction database 130 (FIG. 6.) This **content** royalty amount is also added to the aggregated **content** royalty amount within aggregated vendor sales account 220 (FIG.

6) for each transaction between a user and a **content** vendor. At the time of settlement of payments between MSP 60 and each vendor, this aggregated **content** royalty amount is deducted so that the operator of MSP 60 may pay each respective **content** author, publisher or other intellectual property owner the royalty amount withheld from each **content** vendor, at a later date.

[0267] Referring now to FIG. 29A and FIG. 29B, a flow chart for computation of aggregated **content** royalty amount for each **content** author, publisher or other intellectual property owner and settlement of payments to them is described. At step 1020, the systems and methods of the present invention access a vendor record 200 (FIG.

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6) and retrieve the **content** royalty amount and mark "AN settled", at step 1025. At step 1030, the **content** royalty amount is added to the account set-up for each and every **content** author, publisher or other intellectual property owner. This process is repeated for all **content** royalty amounts recorded in vendor record 200, step 1035.

At step 1040, the system checks to see if vendor record 200 for all vendors has... ..obtains the next vendor record 200 (FIG. 6) as shown in step 1020. If yes, the system moves on to settlement of payments to all **content** authors, publishers or other intellectual property owners.

[02681 At step 1045, the systems and methods of the present invention retrieve the account of a **content** is author, publisher or other intellectual property owner and then check to see if the amount threshold has been reached for the **content** author, publisher or other

intellectual property owner, as shown in step 1050. if not, the system continues to check if the time threshold has been reached, step 1055. Note that both the amount threshold and the time threshold may be different from one **content** author, publisher or other intellectual property owner to the next.

[D2691 These thresholds are pre-determined between each **content** author, publisher or other intellectual property owner ...positive, the system will instruct the bank to make payment from token sales account 225 (FIG. 6) to the bank account (not shown) of the **content** author, publisher or other intellectual property owner, as shown in step 1060. This

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settlement of payment by the operator of MSP 60 described above may be done using an offline method such as sending a check to the **content** author, publisher or other intellectual property owner.

[02701 At step 1065, MSP 60 **updates** the **content** author, publisher or other intellectual property owner by entering the amount of the payment settlement, date and time. If the account threshold or the time threshold has not been reached, no account settlement is processed for the **content** author, publisher or other intellectual property owner. The account settlement process described above is performed for each and every **content** author, publisher or other intellectual property owner whose **content** is sold by each and every vendor registered with MSP 60 to use tokens as one of the user's payment options.

[02711 At step 1070, the system checks to see if all **content** authors, publishers or other intellectual property owners have been processed. If no, it obtains the next account for the next **content** author, publisher or other intellectual property owner, as shown in step 1045. If yes, the process is completed and re-started at the pre-determined...the seller using a credit card becomes cost prohibitive. Using tokens for auctions will open up opportunities for sellers to sell and buyers to buy **content** items, tangible goods, or services that can be priced at a much smaller price point than that provided by current auction sites.

[02731 Furthermore, the...users to use a single user account. For example, in some cases, it is desirable that several members of a family may purchase tangible goods, **content** or services from vendor web sites who are authorized by the operator of MSP 60 to accept tokens as one of the user's payment...

## Claims:

- 1 A method for conducting electronic commerce transactions between a user and a plurality of vendors offering tangible goods, **content**, or services for rental or sale at a plurality of vendor web sites, the method comprising: issuing a plurality of electronic tokens from a micropayment of the plurality of vendors for settling payments for electronic tokens used by the user; facilitating the purchase of tangible goods, **content**, or services from one or more of the plurality of vendors without the user having to disclose personal information to one or more of the... a vendor, recording a royalty transaction in a corresponding micropayment vendor account.
- 2 The method of claim 1, wherein a subset of the vendors offer **content** that is hosted at the vendor web sites, the method further comprising: providing **content** to the user in exchange for electronic tokens; and for each electronic transaction, recording a royalty transaction for the **content** in a corresponding micropayment vendor account.
- 3 The method of claim 1, further comprising maintaining a user database in the micropayment service provider server, the... to use electronic tokens for an electronic transaction.
- 13 The method of claim 1, wherein the micropayment service provider server facilitates user's purchase of **content** from the plurality of vendors without requiring multiple log-in and check-out procedures at each and every vendor web site.
- 14 The method of The method of claim 1, wherein the user may add funds to the micropayment user account prior to or after purchasing tangible goods, **content**, or services from the vendor.
- 16 The method of claim 1, wherein settling payments for electronic tokens comprises settling payments with the plurality of vendors... determined amount threshold or time threshold.
- 17 A system for conducting electronic commerce transactions between a user and a plurality of vendors offering tangible goods, **content**, or services for rental or sale at a plurality of vendor web sites, without the user having to disclose personal information ... micropayment service provider server further comprises a routine to compute the royalty to compensate the author, publisher or other owner of intellectual property of each **content** sold through the electronic transaction.
- 21 The system of claim 18, wherein the micropayment service provider server further comprises a routine allowing the user to purchase **content** at the plurality of vendor web sites without requiring Multiple log-in and check-out procedures at each and every vendor web site.

22 The threshold for purchasing tangible goods, **content**, or services, the threshold comprising either a total amount per electronic transaction or a total spending amount within a predetermined time period.

24 The system... at a plurality of vendor web sites.

25 The system of claim 18, wherein the micropayment service provider server further comprises a routine to access **content** from a user's summary of purchased **content** without requiring a user to re-visit the **content** provider's web site.

26 ...routine that sets a pre-determined time period after the user logs in at the micropayment service provider server for allowing the user to purchase **content** at the plurality of vendor web sites.

27 The system of claim 18, wherein the micropayment service provider-server further comprises a security routine to prevent unauthorized downloading of **content** from the plurality of vendor web sites including encryption of a user login identification with a time variant encryption key.

28 The system of claim 18, wherein the micropayment service provider server further comprises a security routine to prevent unauthorized downloading of **content** from the plurality of vendor web sites including validation of a plurality of URL addresses corresponding to the plurality of vendor web sites, transaction data... routine for transmitting information from the plurality of vendor web servers to the micropayment service provider server when the user is purchasing a tangible good, **content**, or service at the plurality of vendor websites, the information comprising information about each and every vendor from which the user is purchasing the tangible good, **content**, or service and information about the tangible good, **content**, or service.

43 ...authorizing the purchase of the user; and other optional information for internal tracking purposes.

44 The system of claim 42, wherein the information about the **content** comprises one or more of: title of the **content**; price of the **content**; short description of the **content**; **content** URL address; number of times to view the **content**; number of hours to view the **content**; number of days to view the **content**; expiration time of the **content**; and incentive IDs associated with the **content**.

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Country	Number	Kind	Date
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**Claims:**

...processing system as claimed in claim 9, wherein the management site hosts an open learning management system and the information site is an external learning **content** provider; the management information comprises data relating to the user's progress with the external learning **content** which is provided from the information site to the management site and stored on the management site for analysis.

11 A data processing system as...claimed in claim 9, 12 or 13 wherein the management site hosts an open learning management system and the information site is an external learning **content** provider.

15 A data processing system as claimed in claim 10 or 14, wherein the open learning management system enables access to a plurality of external learning **content** providers.

16 A data processing system as claimed in claim 10, 14 or 15, wherein the open learning management system also hosts integrated learning **content**.

17 A process carried out at a management site for providing a user with access to an information site hosting information with controlled access, the...A process as claimed in claim 17, wherein the management site hosts an open learning management system and the information site is an external learning **content** provider and the management information comprises data relating to the user's progress with the external learning **content** which is received from the information site by the management site and stored on the management site for analysis.

27. A process as claimed in...or 21, wherein the management site is configured as an open learning management system providing access to an information site provided by an external learning **content** provider.

23 A process as claimed in claim 18 or 22, wherein the open learning management system provides access to a plurality of external learning **content** providers.

24 A process as claimed in claim 18, 22 or 23, wherein the open learning management system also hosts integrated learning **content**.

25 Data processing apparatus for use at a management site, configured to provide a user with access to a remote information site hosting information with...28

. Data processing apparatus as claimed in claim 25, configured to host an open learning management system; wherein the information site is an external learning **content** provider and the management site is configured to receive from the information site management information comprising data relating to the user's progress with the external learning **content**, which is stored on the management site for analysis.

27 Data processing apparatus as claimed in claim 26, wherein the management site is configured to...claimed in claim 25, 29 or 29, configured as an open learning management system providing access to an information site provided by an external learning **content** provider.

31 Data processing apparatus as claimed in claim 26 or 30, wherein the open learning management system provides access to a plurality of external learning **content** providers.

32 Data processing apparatus as claimed in claim 26, 30 or 31, wherein the open learning management system also hosts integrated learning **content**.

33 Computer software for controlling data processing apparatus to carry out a process as claimed in any of claims 25 to 32.

29. A process...user's activities on the information site.

35 A process as claimed in claim 34, wherein the information hosted by the information site is learning **content**.

36 A process as claimed in claim 35, wherein the data relating to the user's activities on the information site comprises information concerning the user's progress with the learning **content**.

37 Data processing apparatus for use at an information site hosting information with controlled access, the data processing apparatus being configured to co-operate with...s activities on the information site.

38 Data processing apparatus as claimed in claim 37, wherein the information hosted by the information site is learning **content**.

30. Data processing apparatus as claimed in claim 38, wherein the data relating to the user's activities on the information site comprises information concerning the user's progress with the learning **content**.

40 Computer software for controlling data processing apparatus to carry out a process as claimed in claim 34, 35 or 36.

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## CONTENT DISTRIBUTION SYSTEM

	Country	Number	Kind	Date
Patent				19

### English Abstract:

The present invention is directed to systems and methods for distributing and managing media assets arranged as a collection of media **content** (100). In one preferred embodiment, the collection of media **content** (100) is distributed to a storage location

(102) where it is accessible for viewing over a communications network by consumers for a selected interval of time. In another preferred embodiment, media **content** (100) is downloaded to a client **content** database and made accessible for a selected interval of time by client software at the consumer's location (108).

### **Detailed Description:**

#### **CONTENT DISTRIBUTION SYSTEM**

##### Related Application

This application claims the benefit of U.S. Provisional Application No.

60/280,626, filed March 30, 2001, incorporated by reference herein.

##### Background

The digitization of media **content** (e.g., movies, music videos, educational **content**, television shows, games, live events, advertising, literary works, **audio** programs, and other media assets) is becoming more common with the advent of technology that allows **content** suppliers to derive revenues from these assets in a digital marketplace. **Content** suppliers may include entities that own the **content**, have rights to the **content**, or are otherwise suppliers of the media assets. For purposes herein, media assets form a subset of media **content**.

There is a cost for entry into the digital space that requires infrastructure and processes to effectively manage and distribute various forms of media assets, particularly over high bandwidth channels of communication (e.g., digital cable, Internet protocol, and satellite). **Content** suppliers are not traditionally equipped to handle these requirements and would benefit from a system that minimizes the barrier to entry into the digital marketplace.

Users of **content** also have barriers in the digital marketplace. For purposes hereof, a "**content** user" is any person or entity that sells or otherwise exploits media assets. A **content** user may be, for example, the **content** supplier, a digital services platform operator, an **online** site builder, an **educational** institution, or a retailer. One issue facing **content** users is the distribution of media assets to consumers over one or more delivery platforms (e.g., digital subscriber line (DSL), cable and satellite). For purposes hereof, "consumers" are people who view, **listen**, or interact with the **content** (e.g., people watching television). **Content** suppliers often want to control the timing and manner of distribution of their **content** to a consumer. For example, a movie **content** supplier ...for distribution only after a selected amount of time has elapsed since the movie's theater run, or a particular season in line with the **content** of the movie (e.g., distributing scary movies during the Halloween - I season, or Christmas movies during the Christmas season). The movie **content** supplier may further specify, for example, an amount charged per viewing, the mode of delivery to an end viewer, and a limited geographic region for release.

In addition to placing these and other restrictions or limitations on the distribution of

media assets, **content** suppliers usually require payment ...INVENTION

The present invention is directed to systems and methods for distributing and managing media assets. Media assets are preferably arranged as a collection of **content** for exhibition during a designated period (viewing window), and are made available for distribution to consumers during such period.

In a preferred embodiment, the present invention facilitates distribution of **content** to one or more storage locations, and distribution of **content** from the storage locations to consumers. Before media **content** is distributed, it is preferably prepared by a **content** management system. The **content** management system preferably provides a naming convention for media assets by associating media assets with metadata (i.e., descriptive information regarding a particular asset), prepares...movie trailer, branding art, and advertisements). As used herein, an "item" includes one or more media assets and related metadata and/or other data.

The **content** management system then preferably selects media **content** for distribution to particular groups (publishing groups) of consumers based on, for example, geographical location, bit rate service, service provider, and contract terms, and aggregates the selected media **content** into a rollout. A rollout is a collection of **content** that is available for exhibition to consumers during a - 2 designated window of time. Older rollouts are periodically replaced by newer rollouts in order to provide consumers with fresh media **content** and to exchange media **content** based upon contractual obligations associated with the media **content**.

After selecting media **content**, the **content** management system preferably locks the rollout configuration into its final form to prevent any further **content** selections and to meet distribution deadlines, and transfers the rollout to a staging area for association with and distribution to a storage location. After distribution, consumers may be directed to the rollout for a predetermined period of time while another rollout is prepared for a **subsequent viewing** period.

**After** media **content** is prepared for distribution by a **content** management system, the distribution system of the present invention designates a storage location for each rollout selected for distribution, builds or programs a delivery data... ..storage location. In order to accomplish this, the system of the present invention preferably uses a sending processor operable to deliver a collection of media **content** over a network (wire or wireless) to at least one storage location, and a receiving processor at each storage location operable to receive the collection of media data from the sending processor and either build or **refresh** a **content** database based on the collection of media **content** received, the **content** database being accessible by at least one consumer for a selected interval of time. As used herein, the term "refreshing" includes any one of or any combination of adding media **content** to a medium adapted to store the media **content**, removing media **content** stored on the medium, and replacing, editing, or otherwise modifying media **content** stored on the medium. The receiving processor may be programmed to collect and

report **content** usage (e.g., the amount of time the media **content** was viewed, or **listened** to and consumer viewing or **listening** habits), and collect and report demographic data of a consumer using the media **content**. Such data and information may then be used to select media **content** to add to, supplement, or replace existing media **content** stored on the **content** database.

The sending processor preferably includes a computer-based graphical user interface for retrieving a set of menu entries representative of a collection of - 3 media **content** whereupon a system operator (i.e., person overseeing the **content** distribution) may select a collection of media **content** for distribution.

The graphical user interface preferably includes a set of menu entries .representative of publishing groups whereupon a system operator selects a publishing group to build a **content** database. Part of the information that may be contained in the publishing group is the location of media servers used by the consumers that are...  
...determined by a subscriber management system, which creates and manages consumer accounts.

The sending processor is preferably used to distribute a selected collection of media **content** to the selected storage location and route consumers to the selected collection of media **content**. Higher bandwidth **content** such as ...accessible to a medium for delivering high bandwidth, for example, a local Internet provider's broadband network or a cable head end. After distribution of **content** to one or more storage locations, consumers are then able to access the collection of stored media **content** being offered to them and select videos for streaming to the consumer location.

In another preferred embodiment, the **content** management system aggregates the selected media **content** into a "package" (a delivery and storage data structure capable of delivering one or more items at a time) to form a part of a publishing group database ("PGD"). The PGD is a collection of media **content** that is offered to a designated group of consumers. Older items in the PGD are periodically replaced by newer items in the PGD in order to provide consumers with fresh media **content**.

Media **content** is distributed to consumers preferably using methods described herein which include the reporting and licensing of media **content** shown to consumers, thus providing **content** suppliers with an accurate accounting of the use of their media **content**.

It is to be understood that both the foregoing general description and the following detailed ...a schematic diagram of physical components of another preferred embodiment of the invention;

Fig. 3 is a Venn diagram showing the relationship between new media **content** and old media **content** in the generation of an addition list and deletion list;

Fig. 4 is logic diagram of a preferred method for distributing media **content**;

Fig. 5 is a schematic diagram of a preferred architecture of localized components in relation to the central server of Fig. 1;

Fig. 6 is a logic diagram of a preferred method for the delivery of media **content** to a viewer;

Fig. 7 is a logic diagram of a preferred ad procedure for use with the method of Fig. 6;

Fig. 8 is of the invention; and

Fig. 9 is a logic diagram of another preferred method for the delivery of media **content** to a viewer.

## DESCRIPTION OF THE PREFERRED EMBODIMENTS

Reference will now be made in detail to the present preferred embodiments of the invention, examples of which are illustrated in the accompanying drawings.

The present invention in a preferred embodiment is directed to a **content** distribution system for distributing **content** media, preferably in the form of a rollout to one or more storage locations, and for distributing media **content** to consumers. In addition, the **content** distribution system of the present invention - 5 may distribute media **content** external to the rollout, as may be the case for video commercials. A rollout is a collection of **content** for exhibition to consumers during a designated time period. Rollouts are assembled in a **content** management system and preferably include metadata, static images, and low bandwidth media **content**. Media assets include, for example, media **content** provided by a **content** supplier such as movies, music, and literary works.

Metadata is descriptive information associated with a media asset. Rollouts are preferably distributed to central and/or regional storage locations for accessing by a consumer through a digital media service (e.g., digital cable service). High bandwidth media **content** (e.g., video) is distributed to one or more locations accessible to a medium for delivering high bandwidth, for example, a local Internet provider's... ..inactive rollout is any rollout that is not currently available to consumers. An active rollout is any rollout that is currently available to consumers. The **content** distribution system of the present invention can activate or deactivate rollouts in a manner that is seamless to the consumer. For example, if the consumer...or license period, the exchange of rollouts must not affect the consumer's enjoyment of the movie. To ensure a seamless exchange of rollouts, the **content** distribution system uses business logic to maintain **content** on the digital media service that is currently being viewed or under license by a consumer, preferably in a temporary storage location. Once the consumer has finished using the **content**, or their license expires, the **content** is removed from the service and is no longer available to the consumer. The removal of expired **content** from the service does not affect the newly activated rollout available to consumers.

As shown in Fig. 1, the system of the present invention distributes rollouts from a **content** management system 100 to a central server 102, and controls the delivery of

**content** from a master **content** storage associated with **content** management system 100 to a storage device accessible to a local media server, preferably a video server on rack 104. The system of the present invention may also distribute static images and low bandwidth media to central server 102.

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**Content** management system 100 packages media assets with metadata and builds the media **content** into a rollout. A preferred example of a **content** management system operable with the present invention is taught in U.S.

Application Serial No. (to be assigned), titled "**Content** Management System," filed July 31, 2001, which claims priority to U.S. Application Serial No.

60/280,691, the disclosures of which are hereby incorporated advantage of the provider's broadband network and includes a media server and a **content** storage database.

By locating rack 104 near a service provider, the service provider's broadband network may be utilized to stream video contents to consumers. Media **content** is preferably encrypted and delivered (e.g., on tape) for placement in the media server at rack 104 and may be delivered in known ways. As will be appreciated by those skilled in the art, **content** may be centrally stored for direct distribution to consumers by utilizing a communications network (wire or wireless, e.g., cable, DSL, satellite, ...preferably at regular intervals of time, for example, bi-weekly. Each rollout has a viewing window during which time consumers can watch or otherwise use **content** included as part of the rollout. Each subsequent new rollout supplants or replaces the previous rollout. For example, a rollout with a viewing window between...overlapping viewing window is preferred in case a subsequent rollout is late in delivery. Once the new rollout has been created, platform operators (those overseeing **content** distribution) can redirect consumers to the new rollout and delete the old rollout from central server 102. Consumers are preferably directed to a particular rollout...exist on central server 102 and consumers may be directed to certain rollouts as determined by their publishing group.

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Older rollouts may also be **refreshed** by identifying media **content** to be offered to the consumers during a selected interval of time and refreshing the rollout with the identified media **content**. Media **content** may be **refreshed** based on, for example only, any one of or a combination of consumer-related criteria such as geographical location, demographics, **content** usage (e.g., the amount of time the media **content** was viewed or **listened** to and consumer viewing or **listening** habits), and parental controls; and/or contractual obligations associated with the media **content** (e.g., bit rate service, service provider, encryption, price, price range, time frame available for offering the media **content** to consumers).

Central server 102 also may include a web server, an ad manager and a remote data server. The web server enables central server 102 to distribute and receive

**content** and other data using an Internet protocol such as hypertext transfer protocol (HTTP). The ad manager is preferably a software-based application that enables targeting... ..location and the user interface screen the consumer is currently viewing (or has viewed) on the digital media service. The remote data server allows the **content** distribution system to distribute **content** external to a rollout.

Fig. 2 shows another preferred embodiment of the invention wherein one or more rollouts are stored in a rack 106. This allows for quicker response times when delivering **content** to a consumer and also provides increased portability.

Examples of preferred systems operable with the present invention are described in U.S. Application Serial No. (to be assigned), titled "Systems and Methods for Delivering Media **Content**," filed July 31, 2001, which claims priority to U.S.

Application Serial No. 60/255,725, the disclosures of which are hereby incorporated by reference...the system of the present invention also compares the contents of an active rollout with a newly prepared rollout to generate two lists: a rollout **content** addition list (ROCAL), and a rollout **content** deletion list (ROCDL). The ROCAL identifies the items being added in the new rollout and is used to create recordings (e.g., tapes) of new **content** that are sent to rack 104 for installation on the media server.

Another preferred method of this invention is to use the ROCAL file as input - 8 parameters to a sending processor. The sending processor aggregates the **content** into a staging area on the storage device and sends the media assets via a virtual private network or satellite link to the storage device associated with the local media servers. A ROCDL identifies the items being deleted from the current rollout and is used to delete expired **content** from the media server at rack 104. The relationship between additions and deletions is illustrated in the Venn diagram in Fig. 3. The hashed area in Fig. 3 represents **content** that remains on the media server from a previous modification. Therefore, unlike a rollout, which is preferably replaced ...media at the media server on rack 104 is replaced by titles according to addition and deletion lists. The system also may create a rollout **content** total list (ROCTL), which identifies each item (a title which has assets that make up the viewing **content** for the title) in a rollout along with its associated assets (e.g., a feature movie, a movie trailer, ads, and logos).

The ROCTL file method for distributing media **content** to one or more storage locations. In step 200, a platform operator selects a rollout to be distributed. The selection may be made, for example...distribution rollout at a workstation (e.g., Unix workstation). This step may be performed automatically by an appropriate program with input values determined by the **content** management system. In step 206, rollout **content** addition and deletion lists are generated by comparing a current or previous rollout with a newly planned rollout. In step 208, the rollout is delivered upon a command preferably sent by the system operator. In step 210, the rollout **content** addition and deletion lists are entered into distribution programs executed on the master storage device to modify selected media **content** at the media server. These distribution programs may

differentiate between media types and send static - 9 images and low bandwidth media to centrally located web... ...for example, using virtual private networks, satellite, microwave and other wireless and cable based mediums. Figs. 5-7 illustrate a preferred method of distributing media **content** to consumers. As shown in Figs. 1 and 5, rack 104 includes **content** storage for storing encrypted

media **content**, preferably high bandwidth streaming media **content** such as video, and at least one media server, preferably a plurality of media servers situated in a media server farm. Rack 104 may also include ad **content** storage for storing high bandwidth streaming ad **content**. it is to be understood that both the media **content** storage and ad **content** storage may be combined into one larger **content** storage device, or ad **content** may be omitted altogether. Also, media servers may be arranged in any manner suitable for the distribution of any suitable combination of video **content** and ad **content**. Rack 104 is preferably located at or near a service provider in order to take advantage of a provider's broadband network. In use, stream... ...having multiple media servers allows for a fail-over in the event of hardware or other failure. Additional servers may be added as necessary. Preferably, **content** is made available to the media servers through a private Gigabit Ethernet (GigaE)

Virtual Local Area Network (VLAN). The load balancer provides the GigaE interface provides load balancing between the media servers. The GigaE switch provides the backbone private Gigabit

Ethernet network between the media servers and **content** storage. **Content** storage is preferably through a network-attached fileserver.

Fig. 5 shows a schematic of a preferred embodiment of the interaction between central server 102 and and explained above, media servers 1-4 are connected to a load balancer which helps distribute **content** deliveries to - 10 consumers in a more efficient manner. The media servers are preferably encoded at various rates including 384kbps and 750 kbps using...only configured with access to the services used for streaming and web serving.

As shown in Figs. 6 and 7, a preferred method of media **content** distribution to consumers is illustrated. In step 310, a consumer with web browser access makes a selection request after accessing a provider website. It...server checks the permissions associated with the consumer's account in step 314. These permissions can be, for example, restrictions on a particular genre of **content** or spending amounts associated with a family member of a head-of-household account. Though preferred, the present invention need not include an accounting procedure. ...groups of consumers. In step 514, the remote data server resets an ad timer. The ad timer preferably times consumer interaction rather than a particular **content**. In step ...the ad timer, may be accomplished anywhere during the ad procedure. Additionally, this ad procedure is preferred for streaming media advertisements. It is understood of **course**, that advertisements of lower bandwidth may be stored on central server 102, for example in the web server. In such an instance, the procedure may...Interstitial Advertising," the disclosure of which is hereby incorporated by reference. Though preferred, the ad procedure may be omitted and not affect the distribution of **content** to the consumer.

As shown in Fig. 6, after completion of ad procedure 510, the remote data server delivers a selection menu to the consumer's visual display in step 316. In step 318, the consumer selects the media **content** they want to see. In step 320, the consumer's visual display transmits a request for a licensing key for a decryption program to the... ..server. The licensing server is responsible - 12 for handling licensing requests and issuing license keys for decryption programs to end consumers requesting a particular media **content**. Preferably, decryption programs are served by an independent third party. The licensing server preferably cooperates with the account management system in reporting royalties to **content** owners. In step 322, the licensing server either grants a license or a denies a license. If the licensing server denies a license, then in step 324 the consumer selects another media **content** to view and repeats step 320. Once a license is granted, in step 326 a licensing key and decryption program is sent to the consumer... ..in step 328 sends the licensing key and decryption program to the rack 104. The media server in step 330 decrypts and delivers the media **content** to the consumer.

Once **content** delivery ends in step 332, the data server generates a selection menu using data retrieved ...omitted. Additionally, instead of sending a licensing key to the consumer in step 326, the key may be sent directly to the rack to begin **content** delivery to the consumer, thereby omitting steps 326 and 328.

In another embodiment of the present invention, instead of replacing a rollout with a subsequent rollout to provide consumers with fresh media **content**, a publishing group database ("PGD") may be used. The PGD may be refreshed without time or quantity restrictions (i.e., one or more items may...or more items deleted from the package. The revised package may then be delivered to the PGD to replace the package currently being offered.

Media **content** stored on the PGD may be refreshed based on, for example only, any one of or a combination of consumer-related criteria such as geographical location, demographics, **content** usage (e.g., the amount of time the media **content** was viewed or **listened** to and consumer viewing or **listening** habits), and parental controls; and/or contractual obligations associated with the media **content** (e.g., bit rate service, service provider, encryption, price, price range, time frame available for offering the media **content** to consumers).

A preferred method of **content** distribution to consumers utilizing a PGD may be performed using the method illustrated in Figs. 6 and 7, except that a selection menu may be... ..and 9 show another preferred embodiment of the present invention. The embodiment of Fig. 8 is similar to that of Fig. 1 except that media **content** is pushed to and downloaded by a receiving processor to a client **content** database at consumer location 108 instead of the **content** database at rack 104.

Pushing media **content** directly to consumer location 108 lowers system costs and

provides a better quality product, particularly if the media **content** is pushed during non-peak hours over a communications network. Client software on the receiving processor at consumer location 108 may be programmed to provide secure access to the client **content** database, decrypt encrypted media **content**, and track media **content** stored on the client **content** database. The client software may also be programmed to collect and report **content** usage (e.g., the amount of time the media **content** was viewed or **listened** to), collect and report demographic data, and collect and report the consumer's viewing or **listening** habits. The client software is preferably programmed to include a **content** timer to measure the total amount of time the selected media **content** has been stored on the client **content** database and purge the selected **content** from the client **content** database after a selected amount of time has elapsed.

The client software may also be programmed for interactivity in selected media **content**. For example, a "floating bug" program may be included in the client software that indicates areas of interactivity in interactive video **content**. An example of a preferred system and method for creating interactive **content** is taught in U.S. Application Serial No. (to be assigned), titled "A System and Method for Interactive Video **Content** Programming," filed July 31, 2001, which claims priority to U.S. Application Serial No. 60/255,541, the disclosures of which are hereby incorporated by...consumer. In step 620, the consumer selects a viewing window. The viewing window represents the time frame the consumer will have access to the media **content** selected (including **audio content**). Preferably, the entity providing the media **content** will set the total amount of time in the viewing window, e.g., three days, and the consumer will select the time frame desired for having the media **content** available for use, e.g., Thursday-Sunday. It will be appreciated by those skilled in the art that if desired, the consumer may be given the option to increase or decrease the total amount of time in the viewing window for selected media **content**. For example, if a consumer has selected a movie and has not watched the entire movie by the end of the last day of the of time - 15 available to access a given media **content**. For example, with a video subscription service, the consumer may purchase six hours of access to television show X and four days of access to movie Y with access charges being levied depending upon media **content** type and total amount of access time purchased.

The viewing window may be system activated (i.e., the client software may commence timing the viewing **content** from the client **content** database).

In step 622, the media server delivers the selected media **content** to the client **content** database. Preferably, the media **content** is pushed to and downloaded by the receiving processor the client **content** database over the communications network during non-peak hours (e.g., midnight to 5 A.M.) when network access is greater. Delivering the media **content** during non-peak hours allows delivery to be made using a lower bandwidth, thereby reducing operating costs. The media **content** may be delivered from any storage location where the media **content** is kept, e.g., from a master **content** storage facility or from a local **content** storage facility at rack 104. Once downloaded, the selected media **content** may be decrypted (if encrypted) and made

available to the consumer by the client software. If desired, the client software may be programmed to require an access code to view the downloaded media **content**.

In step 624, the **content** timer is checked for the time elapsed. More than one amount of time may be measured. For example, if the viewing window is consumer activated A.M.) for measuring the total amount of time the selected media **content** has been available for use, and commence timing a consumer activated viewing window activated at 9 A.M.

In step 626, it is determined if enough time has elapsed. The client software is preferably programmed to block access to the selected media **content** at the expiration of a selected amount of elapsed time, for example, the viewing window. In systems using the consumer activated viewing window, the selected...and a consumer activated viewing window of three days is not activated until the fourth day, the client software blocks access to the selected media **content** at the end of the fifth day regardless of any time remaining in the consumer activated viewing window.

If the selected amount of time has elapsed, then the client software blocks consumer access to the selected media **content** and in step 628 it is determined if the consumer wants an extension of time to prolong access to the selected media **content**. If the consumer does not want an extension, then in step 630 the client software automatically purges the selected media **content** from the client **content** database. As will be appreciated by those skilled in the art, the client software may be programmed to offer an extension without blocking access. The client software may also automatically purge the selected media **content** without offering any extension.

If enough time has not elapsed in step 626, or if the consumer obtains an extension of time in step 628, the selected media **content** is retained in the client **content** database in step 632 and step 624 is repeated.

As will be appreciated by those skilled in the art, the above steps need not be... ..or omitted, or new steps added. For example, additional steps may be provided offering the consumer the opportunity to purchase and keep the selected media **content**. The client software may then be programmed to permit the user unlimited access to the purchased media **content**. Copying restrictions may be included to prevent the consumer from copying the purchased media **content** without permission.

The client software may be programmed for use in a media **content** sales system. In such a system, the client software may provide many of the same security measures while acting as a receiving agent for a digital **content** purchased by the consumer from a digital **content** sales site.

Other embodiments of the invention will be apparent to those skilled in the art from consideration of the specification and practice of the...

## Claims:

- 1 A system for distributing digital video **content**, the system comprising: a sending processor operable to deliver video **content** over a network to at least one storage location; and a receiving processor at each storage location operable to receive the video **content** from said sending processor and **refresh** a **content** database based on the video **content** received, said **content** database adapted to provide a group of consumers access to the video **content** stored therein for a selected interval of time.
- 2 The system of claim 1, wherein said receiving processor is operable to **refresh** said **content** database based on criteria associated with the consumers.
- 3 The system of claim 2, wherein the criteria associated with the consumers includes the **content** usage by the consumers.
- 4 The system of claim 3, wherein the **content** usage includes the viewing habits of each consumer.
- 5 The system of claim 3, wherein the **content** usage includes an amount of time each consumer views the **content**.
- 6 The system of claim 1, wherein said receiving processor is operable to **refresh** said **content** database based on one or more contractual obligations associated with the **content**.
- 7 The system of claim 6, wherein one of the contractual obligations includes a price charged for media **content** access.
- 8 A method for **refreshing** video **content** stored on at least one **content** database, the method comprising the steps of: selecting at least one **content** database; identifying video **content** to be offered to at least one consumer during a selected interval of time; and **refreshing** each **content** database with the identified video **content**.
- 9 The method of claim 8, wherein said refreshing step is based on criteria associated with a group of consumers.
- 10 The method of claim 9, wherein the criteria associated with the consumers includes the **content** usage by the consumers.
- 11 The method of claim 10, wherein the **content** usage includes the viewing habits of each consumer.
- 12 The method of claim 10, wherein the **content** usage includes an amount of time each consumer views the **content**.
- 13 The method of claim 9, wherein said refreshing step is based on one or more contractual obligations associated with the **content**.
- 14 The method of claim 13, wherein one of the contractual obligations includes a price charged for media **content** access.
- 15 A system for distributing digital media **content**, the system comprising: a sending processor operable to deliver media **content** over a network to at least one storage location; and a receiving processor at each of said storage locations operable to receive the media **content** from said sending processor and **refresh** a **content** database based on criteria associated with a plurality of consumers, said **content** database adapted to provide each consumer access to the media **content** stored therein for a selected interval of time.
- 16 The system of claim 15, wherein the criteria associated with the consumers includes the **content** usage by the consumers.

- 17 The system of claim 16, wherein the **content** usage includes the viewing habits of each consumer.
- 18 The system of claim 16, wherein the **content** usage includes the **listening** habits of each consumer.
- 19 The system of claim 15, wherein the **content** usage includes an amount of time each consumer views the **content**.
- 20 The system of claim 15, wherein said receiving processor is operable to **refresh** said **content** database further based on one or more contractual obligations associated with the **content**.
- 21 The system of claim 20, wherein one of the contractual obligations includes a price charged for media **content** access.
- 22 A method for distributing digital media **content** to one of a plurality of storage locations, the method comprising the steps of: selecting media **content** based on criteria associated with a plurality of consumers;- 20 identifying at least one of the storage locations for receiving the selected media **content**; distributing the selected media **content** to each identified storage location; and offering the selected media to at least one of the consumers for a selected interval of time.
- 23 The method of claim 22, wherein the criteria associated with the consumers includes the **content** usage by each consumer.
- 24 The method of claim 23, wherein the **content** usage includes the viewing habits of each consumer.
- 25 The method of claim 23, wherein the **content** usage includes the **listening** habits of each consumer.
- 26 The method of claim 23, wherein the **content** usage includes an amount of time each consumer views the **content**.
- 27 The method of claim 22, wherein said selecting step is further based on one or more contractual obligations associated with the **content**.
- 28 The method of claim 27, wherein one of the contractual obligations includes a price charged for media **content** access.
- 29 A system for delivering and managing media **content** for use by consumers, the system comprising: a sending processor operable to deliver the media **content** over a network; and a receiving processor operable to download the media **content** from said sending processor to a database, the receiving processor being operable to automatically purge the media **content** after a selected interval of time.
- 30 The system of claim 29, wherein said receiving processor is programmed to offer each consumer an extension of time before purging the media **content**.
- 31 The system of claim 29, wherein said receiving processor is programmed to decrypt media **content** that is encrypted.
- 32 The system of claim 29, wherein said receiving processor ...programmed to report the viewing habits of each consumer.
- 33 The system of claim 29, wherein said receiving processor is  
21 programmed to report the **listening** habits of each consumer.
- 34 The system of claim 29, wherein said receiving processor is  
programmed to report the amount of time the media **content** was used.

- 35 The system of claim 29, wherein said receiving processor is programmed for secured access to the media **content**.
- 36 The system of claim 29, wherein said receiving processor is programmed to prevent unauthorized copying of the media **content**.
- 37 The system of claim 29, wherein the media **content** includes video **content**.
- 38 The system of claim 29, wherein the media **content** includes media **content** selected by one of the consumers.
- 39 The system of claim 29, wherein said receiving processor and database are located proximate a visual display accessible...

**Dialog eLink:** Order File History  
7/K/49 (Item 11 from file: 349)  
DIALOG(R)File 349: PCT FULLTEXT  
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## SYSTEM FOR PROVIDING CONTENT, MANAGEMENT, AND INTERACTIVITY FOR THIN CLIENT DEVICES

	Country	Number	Kind	Date
Patent				19

### English Abstract:

A system is provided for delivering Internet and digital **content** to a variety of thin client devices. A web portal for accessing and selecting **content** is used in conjunction with graphical user interfaces on a personal computer for setting up and controlling the **content** channels. The user interfaces, scheduling, and communication management are controlled by a system control software application running on a local server with an Internet connection. A high speed local area network provides for streaming **content** from the Internet or local server to thin client devices. A digital **audio** playback device is connected to the local server via the local area network connection and decodes streamed **audio** files, and converts them into analog **audio** signals for input into a conventional stereo. Digital **content** is streamed automatically from the local server to another Internet playback device, based on end user **content** preferences and schedule selections.

### French Abstract:

...local a vitesse elevee sert a acheminer le contenu depuis Internet ou le serveur local vers les dispositifs de clients legers. Un dispositif de lecture **audio** numerique est connecte au serveur local par la connexion du reseau local dechiffre les fichiers **audio** et les convertit en signaux **audio** analogues afin de les entrer dans un appareil stereo

conventionnel. Le contenu numerique est automatiquement achemine depuis le serveur local vers un autre dispositif de...

### **Detailed Description:**

System for Providing **Content**, Management, and Interactivity for Thin Client Devices

Field of the Invention

A system is disclosed for providing user specified channels for moving **content** from the Internet and local storage device to one or more networked devices for access by end users. More specifically, **content** and data is delivered to a variety of devices via a caching gateway device and a local area network. Software residing on a PC or PC in combination with a storage gateway device provides **content** distribution, management, and interaction functions.

Definitions

Web, world wide web, and Internet are used here interchangeably, and are defined as the sum total of all... ..storage gateway system.

The term "message" is defined as information that is sent digitally from one computing device to another for various purposes. The term "**content**" is used to mean the information contained in digital files or streams that is meaningful, relevant, and desired, by end-users. For example, **content** is entertainment or news, that is, information.

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that was for the most part created by entities other than the end-user, or for example, **audio** files in MP3 format. 'Data7' is used to mean information created by end-users such as digital schedule contents, responses from devices sent back through the system, or digital messages and email. "**Content**" and "data@" are sometimes used interchangeably.

Local Area Network (LAN) is defined as a network structure that includes two or more devices that can communicate... ..home network where several computers and other smart devices, such as the Internet clock (described below), would be digitally connected for the purpose of transferring **content** and data, controlling each other, sharing programming, or presenting data and **content** to an end user.

Codec (Compression/Decompression algorithm) is a software application that is used to decode (uncompress) encoded (compressed) media files or streams. Most **content** is stored and sent in a compressed format so that the **content** files are smaller and thus take up less storage space and use less bandwidth when being transferred via the Internet.

The **content** is then decoded at the playback device. For example, MP3 **audio** files are encoded and, must be decoded by a microprocessor running the codec in order for the **audio content** to be presented to the user in an analog format. Codecs for both video and **audio** are a well-known field of digital media technology and will not be described here in detail.

HTTP ...20Kbps range.

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While networked PCs with Internet connectivity provide greater convenience for productivity applications, there are other trends that are influencing end user's **content** experiencing habits. For example, Personal Video Recorders (hereafter PVRs), such as the technology provided by Tivo, of Santa Clara, California, are increasing in popularity.

These... ..on VCR "time-shifting" functionality, allowing users to record, pause, and start live broadcast media, almost in real time. These devices digitize terrestrially broadcast television **content** and store the files on a hard disk drive, providing much faster random access, fast-forwarding, and rewinding. A graphical user interface is provided that allows users to make **content** preference selections. A PVR supports the trend toward user controlled "anytime" access to digital **content**.

The NIP3 digital **audio** format is an **audio** encoding technology that allows consumers to further compress digital **audio** files such as those found on Compact Disks, to much smaller sizes with very little decrease in sound quality. The N4P3 format is the **audio** layer of MEPEG-2 digital **audio** and video compression and transmission standard.

For example, the N1P3 format allows for compression of **audio content** to approximately 1 million bytes per minute of **audio**, at near Compact Disk quality. This ...a decrease in the cost of flash memory, a type of non-volatile silicon-based mass memory, has made it possible to develop affordable, portable digital **audio** playback devices. These are devices that are significantly smaller than portable CD players because they contain no moving parts, only flash memory and a microprocessor for decoding NIP3 compressed **audio content**.

PC-based NIP3 software players have been created that provide a convenient graphical user interface and software decoding of NIP3 files. The most popular player... ..by American Onhne/TiTne Warner. Winamp allows users to play NIP3 files on their PC, using an existing sound card with external speakers.

However, to **listen** to N1P3s the user must interface with the PC, using a mouse and keyboard, and must be nearby the PC sound output equipment.

The smaller size of NIP3 encoded **audio** files has also enabled these files to be shared by users across the Internet, since the transfer of these files takes an acceptable amount of... ..service businesses

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Xt

have appeared, such as MP3.com and Napster.con-L that provide various means for users to gain access to digital **audio** files.

In addition to music, many other types of **audio content** are now available in digital

format, such as spoken-word **content**, news, commentary, and **educational content**.

Audible.com is an **Internet**-based repository of digital spoken-word **content**. Digital files containing **audio** recordings of books being read aloud are available for download directly from their website.

Graphic **content** such as video and still images are also increasingly available.

Digital still and video cameras allow the capture and rapid transfer of images. The Ceiva... large LCD, and also because it must include enough memory to store the digital images. However, the Ceiva, Picture Frame is an example of digital **content** delivered beyond the PC.

Internet access is also available through the use of wireless phones with Internet browsing capability and Personal Digital Assistants (hereafter PDAs... rich media experiences that

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can only be supported by broadband data-rates. Additionally, use of these products supports the trend of access to Internet **content** beyond the PC.

AvantGo, Inc. of San Mateo California provides software that channels **content** from the Internet to a Palm Pilot handheld device through a PC with an Internet connection. The Palm Pilot must be docked in its cradle for the transfer to take place.

The personal computer is used mainly as a communication Link, as none of the **content** is stored on the computer, it passes through the PC and is stored on the Palm Pilot. The user removes the Palm Pilot from the... Although the Palm Pilot with the AvantGo service is not a real-time Internet device, it does further support the trend of access to Internet **content** beyond the PC.

Cable, as well as satellite TV services are efficient in providing video **content** to a wide variety of users. However, most existing cable and satellite systems provide video delivery services on a broadcast model, that is, customers must choose from a set number of **audio**/video programs that are simultaneously broadcast, with the schedule determined by the broadcast networks. With the overlaying of data services over existing cable lines, there... demand cannot be supported by the bandwidth available on the existing networks, due to the high data-rates required to transport high-quality video and **audio** in real-time.

The convergence of the digitization of **content**, combined with the proliferation and decreasing cost of networking and data processing components, is providing the opportunity to deliver rich **content** via the Internet, to a variety of inexpensive devices beyond the personal computer. What is required is a system that provides an economically optimal architecture and management system for allowing users to set up preferences for **content** of varying types, including rich **content**, and other services, to be automatically delivered to inexpensive client devices.

### Summary of the Invention

The present invention exemplifies the new and unobvious art of a system for delivering **content**, data, ...to a variety of thin client devices, Briefly and generally, the system is used to provide a means for end users to program preference-based **content** for delivery at various client devices, and then to automatically or under the control of the user, send the **content** to client devices for presentation to the end user. **Content** from the Internet or otherwise digital **content** is accessed and cached locally in a server in the home or enterprise, so that wide area network bandwidth is optimized. The cached **content** is sent to thin client devices via a LAN communication link that is much faster than the wide area link, resulting in rich media experiences for the end user. The system also provides for inexpensive thin client devices, because the long term mass storage of **content** and data, and the processing of GUI instruction occurs at the local PC and/or storage gateway. The system for delivering **content** and services to thin client devices disclosed herein provides for a low total cost of delivering **content** beyond the PC, while insuring a high quality experience for the user in terms of **audio** and video quality, and simple interaction.

### Objects and Advantages

Further objects and advantages of the present invention are as follows.

- (a) to provide a system where **content** delivery devices can be lower in cost due to the fact that mass storage, large displays, and the majority of device setup is offloaded to the PC or PC and caching gateway.
- (b) to provide high-bandwidth **content** delivery with a very low overall system cost.
- (c) to provide a system that optimizes the usage of broadband bandwidth, due to the fact that **content** can be sent to the local caching device during times when bandwidth is least expensive, such as in the middle of the night or during midday.
- (d) to provide a simple system for sending Internet **content** to client devices beyond the PC.
- (e) to provide a system that provides economically efficient **content** delivery by utilizing un-used processing power and storage capacity in a user's PCs.

- (f) to provide a means for configuring **content** and operational preferences for a thin client device that receives Internet **content**, by using the convenient and optimized interface available at a PC.
- (g) to provide a device with valuable real-time interactivity with a simple, low-cost human interface.

(h) to provide a convenient drag-and-drop graphical user interface that allows users to make **content** selections using a web page and a local application.

(i) to provide a system whereby **content** that is specifically preferred by an end user is automatically retrieved and stored on a local storage device for delivery at a pre-scheduled time... ..that allows single button activation interactivity by the end user.

(k) to provide a system that allows users to gain access to information related to **content** they experience on thin client devices while engaged in other activities that make browsing at the very moment of experiencing the **content** impractical or inconvenient.

#### List of Drawing Figures

FIG 1. shows a block diagram of the system at the highest level.

FIG 2. shows a block diagram of the system control application.

FIG 3. shows an example console GUI on the PC desktop.

FIG 4. shows the web-based **content** guide GUI window and the **audio** device **content** editor GUI on a PC display desktop window.

FIG 5. shows the web-based **content** guide GUI window and the **audio** device **content** editor GUI after a **content** object has been dragged and placed.

FIG 6. shows the web-based **content** guide GUI window and the **audio** device **content** editor GUI, with a dialog box launched.

FIG 7. shows the web-based **content** guide GUI window and the **audio** device **content** editor GUI with the "new playlist" text box open.

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FIG 8. shows the web-based **content** guide GUI window and the Internet clock **content** editor GUI

FIG 9. shows the web-based **content** guide GUI window and the Internet clock **content** GUI after a **content** module has been dragged and placed.

FIG 10. shows the web-based **content** guide GUI window and the Internet clock **content** GUI after a **content** module has been expanded from "Monday" to "Friday".

FIG I 1. shows the web-based **content** guide GUI window and the Internet clock **content** GUI and the softkey assignment pop-up menu.

FIG 12. is an isometric view of the **audio** playback device.

FIG 13., is an isometric view of the Internet clock.

FIG 14. shows a tag aggregation web page.

FIG 15. shows a PC desktop with the console and the **audio** device controUer.

FIG 16. shows a PC desktop with the console and the Internet clock controller.

FIG 17. shows a functional block diagram of a storage gateway.

FIG 18. shows a digital image editor GUL

FIG 19. shows a block diagram of the **audio** playback device/stereo system.

FIG 20. shows the **audio** playback device with the remote control removed.

FIG 21. is a block diagram of the tag response sequence.

FIG 22. shows a PC desktop with a **content** preference selection web page.

FIG 23. shows a system block diagram including a storage gateway peripheral.

FIG 24. is a home PC storage server setup flowchart.

FIG 25. is a flowchart showing the process of programming client device **content** on a website.

FIG 26. is a home PC storage server operation sequence.

FIG 27. , is an image of a webpage for selecting the client... ...an image of webpage which is a first setup page for an Internet clock.

FIG 29. is an image of a webpage for programming the **content** for an Internet clock.

FIG 30. is an image of a webpage showing the results of a users selection of **content** for an Internet clock.

#### Description of Preferred Embodiment

First a description of the various components of the system is ...levels including at the interface level (what the end user sees and experiences) and at the action level (software and hardware interactions involving digital messages, **content**, and data). It is assumed that software engineers of reasonable ability would be able to program the functions described here using common programming languages and... ...are given when it is deemed to aid in the complete disclosure of the system.

The system disclosed herein provides a communication connection and a **content** and data management system comprised of software and hardware on three different computing platforms: (1) the Internet 8, (2) a local PC 34 or PC... ...by Microsoft of Redmond, Oregon. PC 34 also includes a Universal Serial Bus (hereafter USB) port for

connecting peripheral devices. PC 34 is connected to **content** and data 10 on Internet 8 via a wide area network broadband communication link 14 that provides data delivery rates ranging from 500kbps to 3... ..34. The communication message structure between client devices 78 and PC 34 and storage gateway 38 are XML formatted messages 74 sent over HT77P.

### Web **Content** Guide

Referring again to FIG. 1, **content** and data 10 on Internet 8 is expressed on web pages as an organization of text and graphical information, some of which is configured as interactive hyperlinks, all of which are formatted using HTML for presentation to end user's PCs 34 via H171? communication protocols. A **content** selection web page, 22 is shown in FIGS. 4 through FIG. 11. The graphical interactive representation of the portal to the end user is... ..manifestation of the portal is that of software and data stored on servers located at various and disparate physical locations, but connected by Internet 8.

**Content** 10 on Internet 8 is arranged for delivery to local client devices 78 a, b, c, and d by a system that allows for graphical icons, referred to in this disclosure as **content** objects 20, that exist on **content** selection web page 22, to be dragged and dropped onto **content** editors on a PC 34. Drag and droppable **content** object 20 is a graphical representation of a file system path that points to a digital **content** file stored locally on hard disk drive 30 on PC 34 or on storage gateway 38, or on a server on Internet 8, or is the graphical designation of a URL or IP address and port number of an digital **content** stream originating on a server on Internet 8. The purpose of the portal is to simplify and facilitate the discovery and selection of **content** 10 from Internet 8 for later use on client devices 78.

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**Content** selection web page 22 capability may include, but is not limited to the following functionality.

1) Presentation and organization of **content** and or links to **content** according to file type (e.g. MP3, NIPEG, and the like), and or according to genre (e.g.

music or video).

2) Further sub classification of **content** with file types or genres. For example a "music" category may be further divided into additional classifications such as 4classical, 'Jazz', "pop", "internet radio" and the like.

3) Additional information that is relevant to **content** links. For example, a song link may be displayed with information about the artist and or reviews and links to further information such as lyrics, artist concert schedule, and the like.

4) A means for searching for particular **content** on the web portal and or its affiliate links.

5) A means for retaining user preference information for the purpose of customizing the web portal **content** according to the users preferences.

**Content** IO from Internet 8 that may be used in the system disclosed here may be selected from a wide range of **content** selection web pages 22, that may be formatted differently, and may be available from many different **content** creators and **content** aggregators. **Content** creators include for example the music labels, such as EMI or BMG, both of New York, New York, that is, firms whose business it is to create or commission to create, and own **content**. **Content** aggregators are firms whose business it is to collect certain types of **content**, such as digital music, for the purpose of enabling ease of selection by end users and distribution. Examples of **content** aggregators are NIP3.com, or **Listen.com**.

The capability for determining and aggregating the **content** objects 20 presented to a specific user on **content** selection web pages 22 are derived from **content** preferences selections provided by the user. For example, referring now to FIG. 22 a **content** preference selection web page 24 is shown with **content** selection check boxes 42 beside **content** selection labels 46 that describe a variety of **content** choices. The user uses the mouse to click on the boxes next to desired **content** types, as shown in FIG. 22.

Thereafter upon returning to **content** selection web page 22, only **content** objects 20 that 14 relate to the selected **content** types are displayed to the user. Functionally, **content** selection labels 46 are graphical representations of HTML Links to actual **content** files, such as digital **audio** or digital video files. These links are organized and stored in a **content** link database 126 on **content** link database server 130. The actual **content** files to which **content** selection labels 46 refer are stored at the **content** creator's or **content** aggregator's servers.

#### System Control Application

Referring now to FIG. 1 and 2, a system control application 18 is comprised of two sub-applications... implemented as a Win32 application and resides and runs on PC 34. System control application 18 serves the function of managing the connection between **content** 10 and various servers on Internet 8, and PC 34 and storage gateway 38, and also manages the flow of information between PC 34 and... grammar. System control application database 96 is a set of files that contain system parameters and data. For example, a track (song name) shown in **audio** device **content** editor 24 is referenced as a file name and a path designation a particular hard disk drive 30 on either of PC 34 or storage... mouse and keyboard, or other pointing and interaction devices.

3. Allowing for manipulation of the GUI elements such as.

- a. drag and drop 28 of **content** objects 20
- b. GUI button activations
- c. text entry.

d. pull down menu and menu selections.

4. Communication between GUI module 46 and core module... ..and control manipulations made by the end user are communicated to core module 42 where they can be acted upon.

5. Launching of specific device **content** and control editors from a system console 16, as shown initially in FIG. 3, described below.

Core module 42 consists of the portion of the system control application 18 that acts on **content** and data 10 from Internet 8 and also processes commands contained in messages sent from client devices 7 8, providing, but not limited to, the **following** functions.

1. Communication links.

a. **Accessing content** 10 on Internet 8 at a prescribed location as determined by user inputs into the GUI **content** editors such as **audio** device **content** editor 24 and Internet clock **content** editor 40.

b. Accessing and communicating with GUI module 46.

c. Accessing and communicating with client devices 78.

2. Managing the caching (local storage) of **content** 10 from Internet 8 or otherwise digital **content** files.

3. Streaming of **content** 10 from Internet 8 to client devices 78 connected to PC 34 and storage gateway 38 via LAN 70.

a. Managing and routing streaming digital **content** 10 from Internet 8 to client devices 78.

b. Managing and routing streams of cached digital **content** 10 files on storage gateway 38 or PC 34 to the client devices 78.

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. Scheduling - time-based automation of the accessing, caching, and streaming of **content** 10 from Internet 8 at times prescribed by the user or at times derived by direction given by the user through the GUI **content** editors such as **audio** device **content** editor 24 and Internet clock **content** editor 40. The scheduling function accesses time and date inputs associated with actions stored in system control application database 96 by GUI module. The scheduling...at PC 34 or storage gateway 38 and delivered to client devices 78 on an as-needed basis. For example, if the network device is **audio** playback device 86 that must be able to decode a

variety of different encoded **audio** streams, then a specific CODEC (sent as a BLOB - binary large object) can be delivered to **audio** playback device 86 via LAN 70 and installed into memory 212 immediately before a **content** stream requiring that specific CODEC. Many different types of applications can be delivered just-in-time to client devices 78. The advantage of this feature is that it requires for example **audio** playback device 86 to have smaller quantities of non-volatile (flash) memory 216 and smaller quantities of volatile (SDRAM) memory 212.

Reprogramming or modifying the... at client devices 78 is also made easier since the software is accessible at PC 34 or storage gateway 38.

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. Transcoding - Certain types of **content** will be received at PC 34 or storage gateway 38, decoded, re-encoded using a different CODEC at PC 34, and then streamed to client... One or more client device control bars 26 constitute console 16, shown in FIGS. 3 through FIGS. 11.

10. Message Transactions - text or other **content** or data from the Internet 8 can be transferred and presented on display 170 and display 132 client devices 78.

11. Tag servicing - when a tag button 128 or tag button 198 is pressed on one of client devices 78, time, data, and information pertaining to currently playing **content** is aggregated into a message and sent to tag storage and processing server 138. Tag processing services included in core module 42 acquire information... device, and local server). Core module 42 time and date data is thus synchronized with an external (absolute) standard.

13. Mirroring - Users can specify that **content** selections they make using the device **content** editors are to be mirrored at various other devices. For example, a user may have **audio** playback device 86 and a car caching and playback device. The user can specify that they want **content** 10 from Internet 8 that is cached on storage gateway 38 in the home to be mirrored exactly in the car-based caching device. The end user can thereby access all of the exact same **content** 10 in the same playlist structure in both the home and in the automobile.

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System control application 18 and system control application database... by the same LAN 70. It is anticipated that users will own and operate multiple PCs 34 in a single home for example, with different **content** 10 cached on each PC 34. However, for the purpose of simplicity in describing the basic functionality of the system, the preferred embodiment will focus... Client devices 78 can take many physical forms but the common attribute is that client devices 78 are nodes on LAN 70, receiving digital

**content** and data 10, and instructions, from core module 42 subsystem of the system control application 18, and sending back NIVEL message 74 control instructions and data from interaction or data that originates at client devices 78. In the preferred embodiment client devices 78 include webpad 92, **audio** playback device 86, Internet clock 82, digital picture frame 100, and automotive storage device 142. Generally, client devices depend on LAN 70 connectivity to provide... ..their functionality. Client devices 78 range widely in the amount of integral memory capability. For purposes of clarity, the preferred embodiment shows in detail how **content** is set up, organized, and scheduled for delivery to two media player devices: **audio** playback device 86 that is connected to a stereo receiver 114, and Internet connected clock 82. However, it should be clearly understood that the system is designed to function with a wide variety of networked client devices 78 and **audio** playback device 86 and Internet clock 82 are described as examples of how the system functions.

FIG. 12 shows an isometric view of the **audio** playback device 86. The purpose of **audio** playback device 86 is to functionally connect digital **audio content** from a remote digital **audio** source to an already existing conventional stereo system **Audio** playback device 86 receives a stream of encoded **audio content** from PC 34 or storage gateway 38, real-time decodes it in real-time, and converts the uncompressed digital information into analog electrical signals. **Audio** playback device 86 includes a plastic injection-molded main housing 168 that contains a printed-circuit board (PCB) 218. PCB

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18 electrically connects... ..in combination with dynamic memory 212 executes instructions from its operating system and programming, referred to as the firmware 220 stored in programmable memory 216. **Audio** playback device 86 also includes a wireless network ...for processing IR commands from the IR remote control 90, and a display 170 sub-system for presenting text and graphical information to the user. **Audio** playback device 86 also includes a digital-to-analog converter (DAC) 224 for converting the uncompressed digital information into analog signals that are presented at the standard left and right RCA connectors, 240 and 244. **Audio** playback device 86 firmware 220 also includes a CODEC for decoding the **audio** file that is streamed to it from PC 34 or storage gateway 38. In this embodiment, remote control 90 can be attached to **audio** playback device 86 front bezel 164, as shown in FIG. 12. FIG.

20 shows remote control 90 removed from the front bezel. FIG. 19 is a block diagram showing how left analog output 240 and right analog output 244 included in **audio content** playback device 86 are connected respectively to the left line input 248 and right line input 252 on existing stereo receiver 114. Stereo receiver 114 functions in the conventional way, pre-amplifying and amplifying the **audio** signals and delivering them to the left speaker 272 and the right speaker 276. As shown in FIG. 19, **audio** playback device 86 also includes a terrestrial broadcast tuner subsystem 236 for tuning local AM and FM broadcast radio.

**Audio** playback device 86 remote control 90 includes button controls for the following functions: Power button 196 - for powering the device on and off, Source/User button 204 - for selecting the user (owner of playlists and corresponding tracks) or for selecting

storage gateway 38, PCs 34, or terrestrial broadcast, from which **content** 10 from Internet 8 or other terrestrial **content** will be delivered; Playlist forward button 176 and playlist back button 172 - for advancing through and selecting playlists; Track forward button 184 and track backward... ..through and selecting tracks for playback; Play/Pause button 192 - for starting and pausing (stopping at point in the middle of a playback of an **audio** file); Stop button 200 - for stopping

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playback of **audio content**; Tag button 188 - for triggering the transmission of information about a currently playing track (file, Internet 8 stream, or terrestrial broadcast) back through the system for delivery to the end user on a website or for delivery to the **content** creator or **content** originator; User-defined button 206 - This button may be associated with a variety of functions as selected by the user using the **audio** playback device setup GUI.

The text descriptors associated with the playfists and associated tracks are sent to **audio** playback device 86 when requests are made by button activations. For example, if the user activates forward playlist button 176, the text string for the next playlist after the one that is currently being played is sent to **audio** playback device 86 via LAN 70, is processed, and the text is displayed on display 170. Likewise if forward-track button 184 is activated, the... ..the current playlist stored in system control application database 96 located on storage gateway 38 or PC 34, is sent by core module 38 to **audio** playback device 86, where the text string is displayed on display 170. If play button 192 is then activated, the currently playing track is halted and the track that is being displayed is sent, decoded, and played through the stereo system. The functional interface to the user of **audio** playback device 86 is similar to that found on a typical CD changer, where the CD represents the playlist, and the tracks on the CD... ..that are labeled by graphics on display 132. Softkey buttons 124 a-e can be used as presets to allow the user to jump to **content** presentations that are associated with each button by a GUI pull-down menu 52 on Internet clock **content** editor 40, as shown in FIG. I 1.

## 2. Volume dial

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. Snooze button 120 (on/off)

4. Source select (terrestrial radio, Internet 8 **content**)

5. The Tag Button 128 - for triggering the transmission of information about a currently playing track (file, Internet 8 streati-4 or terrestrial broadcast) back through the system for presentation to the end user on tag aggregation web page 56, or for delivery to the **content** creator or **content** originator.

Internet clock 82 includes microprocessor 156 and memory 140 sufficient to receive and decode a full-motion video stream. Internet clock 82 also contains an integral sound system consisting of an amplifier and speakers 136. Therefore Internet clock 82 is capable of presenting **audio**, video, and interactive multimedia. The digital electronics and packaging technology for such a devices is well known in the consumer electronics industry, so it will not be described in greater detail.

## Preferred Embodiment - Use of the System

There are three functional modes: (1) setup, (2) real-time user controlled **content**/data delivery, and (3) automatic **content**/data delivery.

The setup functions provide the user with the ability to organize and manage **content** that is to be sent to a device. **Content** 10 may be stored or generated on Internet 8, or may exist on a local storage device, such as the PC's 34 hard disk drive 30, or on storage gateway 38. This **content** is organized and managed with the use of device **content** editors that are an aspect of GUI module 46 of system control application 18.

A **content** editor is a part of GUI module 46 and is used for managing and manipulating **content** 10 that will be sent to networked client device 78. The preferred embodiment will describe **audio** device **content** editor 24, used to program and control **content** 10 for **audio** playback device 86; and Internet clock **content** editor 40, used to program and control **content** for Internet clock 82. **Content** editors are launched from console 16. This action is explained later in this disclosure.

**Audio** device **content** editor 24 provides the user with the ability to group **audio** files (tracks) into user-defined playlists, which are text association that contains a list of and paths to **audio** files or the URLs or IP addresses of **audio** streams, and are stored in system control application database 96. For example, a user may create a playlist called 22

'@Classical Music" that contains ten Beethoven symphonies. A common type of **audio** file format is the MP3 (MPEG layer 3) format. Certain tracks such as MP3 music files are stored on hard disk drive 30 on PC... may be in a variety of formats. A popular format is in the Windows Media format, created by Microsoft Corporation of Redmond, OR. The **audio** device **content** editor 24 capability includes, but is not limited to, the following functionality.

1. Display playlists
2. Display tracks in a playlist
3. Create a new... (the "delete" button) 8. Reorder tracks in a playlist (this is accomplished by dragging and dropping the tracks in the playlist editor).

The interaction between **audio** device **content** editor 24 and the other elements of the system will be discussed later.

The function of Internet clock **content** editor 40 is to manage **content** 10 that is associated with a scheduled routine, such as a wakeup routine. Internet clock **content** editor 40 allows the user to associate **content** 10 such as **audio** or video files (stored on the user's hard disk drive 30 or streamed over Internet 8) with an associated time and date. A set of **content** selections for the one-week period shown on Internet clock **content** editor in FIG. 8 is called a wake-up routine. For example, referring now to FIG. 9, the user can associate a pointer to a... 8, shown as "MSNBC" in the figure, to be triggered at 8am on Monday through Friday. This association is created by dragging and dropping 28 **content** object 20 from **content** selection web page 22, to Internet clock

**content** editor 40. At the prescribed time, the scheduler function in core module 42 initiates the serving of **content** designated by **content** object 20, to Internet 23

clock 82, where it is played or presented to the user to wake them up, or for other purposes where automatic triggering is required.

The Internet clock **content** editor 40 capability includes, but is not limited to the following functionality.

1. Display calendar (time, days, weeks, months, dates, and the like)
2. Select and associate **content** with a time and date
3. Add additional **content** to a pre-existing routine
4. Delete a **content** object from a routine
5. Play **audio** files from an **audio** playlist (a playlist made using the **audio** device **content** editor)
6. Schedule the display of graphics files, such as a series of digital pictures on Internet clock 82 when it is not executing a scheduled wake-up routine.
7. Associate a **content** type or **content** module with one of the softkey buttons 124 located beside display 132.
8. Synchronize with a user's personal (digital) information manager (PIM), such as a Palm Pilot made by Palm Inc. of Santa Clara, CA, or the Cassiopeia, made by Casio Inc., of NJ.

Both **audio** device **content** editor 24 and Internet clock **content** editor 40 are launched manually by the user by clicking on the associated client device control bar 26 on console 16. FIG. 3 shows PC desktop 12 with console 16 showing three client device control bars 26 (the PC's speakers here are not considered a client device although **audio** can be channeled to them). For example, considering FIG. 3 as the initial state of launched and running system control application 18, using the mouse the user would position the pointer on PC desktop 12 on client device control bar 26 that is associated with **audio** playback device 86 and activate the left mouse button. **Audio** device **content** editor 24 launches and the result is shown in FIG. 4, with **audio** device **content** editor 24 displayed on PC desktop 12.

PC desktop 12 in FIG. 4 also shows **content** selection web page 22. **Content** selection web page 22 can be launched in a number of ways. One method for launching **content** selection web page 22 is to activate the **Content** Guide button 30 located on the bottom of console 16 by using the mouse to place the pointer on top of **Content** Guide 24

button 30, and pressing and releasing the left mouse button. Another launching method is to have **content** selection web page 22 "bookmarked" (Netscape Navigator) in a browser, or added to a "favorites" list in a browser (Microsoft Internet Explorer). The type of Internet browsing shortcut to a specific web page is well known in the computer industry.

The spherical icons on **content** selection web page 22 are **content** objects 20 that are dragged and dropped onto the **audio** device **content** editor 24 tracks window 34.

Using the mouse to control the pointer on PC desktop 12, the user moves the pointer on top of **content** object 20, depresses the left mouse button, and moves the pointer-**content** object 20 bundle to tracks window 34 of **audio** device **content** editor 24 (while continuing to depress the left mouse button). When the user releases the left mouse button, a text description of **content** object 20 appears in tracks window 34 of **audio** device **content** editor 24. FIG. 5 shows that **content** object 20 "Top 40 Radio" has been dragged from **content** selection web page 22 to **audio** device **content** editor 24 tracks window 34, with drag and drop path 28 depicted. The user would perform this drag and drop operation on **content** objects 20 for which playback at **audio** playback device 86 is desired. For example, the "Top 40 Radio" **content** object 20 represents the URL of an Internet 8 radio stream. As shown in FIG. 6, the user can also add **audio** files to the playlists using a conventional Windows dialog box that allows the user to navigate to a specific subdirectory on PC 34. This type of PC 34 file access is a well known function of PCs 34.

**Audio** device **content** editor 24 also provides the capability for the user to create playlists.

This is accomplished by using the New List button 37, shown as part of **audio** device **content** editor 24 in FIG. 4 through FIG. 7. FIG. 7 shows that a playlist creation text entry box 36 is launched when the user activates New List button 37.

On the software action level, when a user creates or modifies a playlist by adding tracks such as described above using **audio** device **content** editor 24, GUI module 46 modifies system control application database 96, a file that contains the text names of playlists, the file names and paths of local **content** files, and URLs of streams, that the user has selected as tracks. A copy of system control application database 96 is stored on both the... ..In the preferred embodiment, a portion of the files that are set up by the user as tracks in

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playlists that are accessed at **audio** playback device 86 are stored on storage gateway 38.

In this scenario, the user can still access tracks stored on storage gateway 38 at **audio** playback device 86 if PC 34 has been shutdown. The system may also function with the some or all of the files that constitute the tracks listed in **audio** device **content** editor 24 stored on the PC 34. It is obvious that PC 34 must be booted and functioning for the user to access any files stored on PC 34. The action of accessing those files at **audio** playback device 86 is discussed below.

FIG. 8 shows an initial state for using the Internet clock **content** editor 40.

Internet clock **content** editor 40 is formatted as a calendar (with a time domain fon-nat),

since Internet clock 82 will have varying **content** depending on the time of day or night.

Internet clock **content** editor 40 is also launched from console 16 in the same way that **audio** device **content** editor 24 is launched. FIG. 9 shows Internet clock **content** editor 40 after **content** object 20 has been dragged onto the editor window in the "Monday" slot.

FIG. 10 shows that the user has dragged **content** object 20, expanding it across the weekly calendar slots, stopping on the "Friday" slot. Once **content** object 20 is dragged and placed onto Internet clock **content** editor 40, **content** object 20 is referred to as an expandable **content** bar 48. Expandable **content** bars 48 are dragged across the day sections of Internet clock **content** editor 40 by using the mouse to position the pointer on the right side of expandable **content** bars 48, depressing the left mouse button, dragging across Internet clock **content** editor 40 (expandable **content** bar 48 will graphically elongate) while keeping the mouse button depressed. The mouse button can be released when expandable **content** bar 48 is dragged to the last day on which **content** 10 referred to by expandable **content** bar 48 is to be played. Again referring to FIG. 10, the result of this programming activity is that every day of the week between Monday and Friday, core module 42 will automatically send prescribed **content** 10 to Internet clock 82 at the time indicated on left hand side of Internet clock **content** editor 40, or at the time that the user has set as the wake-up time at Internet clock 82. Settings at Internet clock 82 take precedence over Internet clock **content** editor 40 settings.

In setup mode, GUI module 46 receives commands from the user via the GUI that is drawn on PC desktop 12. The user's actions and decisions are recorded by device **content** editors such as Internet clock **content** editor 40 and **audio** device **content** editor 24  
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which comprise GUI module 46, are encoded as digitally described messages, and are then communicated to and stored in system control application database 96 by core module 42. In the preferred embodiment, where core module 42 exists as a JAVA software program on storage gateway 38, **content** 10, the playlists, and names of tracks and stream addresses, are stored on hard disk drive 30 at storage gateway 38. PC 34 also contains... ..copy of system control application database 96.

#### Preferred Embodiment - Real-time Mode

In real-time mode, the user can activate and control the delivery of **content** 10 that has been set-up in **audio** device **content** editor 24, either at **audio** playback device 86, or at PC 34. In the preferred embodiment where **audio** playback device 86 is connected to stereo receiver 114, the user can access the playlist information on an interface at **audio** playback device 86. FIG. 12 shows that remote control 90 is used to access the source, playlist, and track (**content** object 20) at **audio** playback device 86. Display 170 included on **audio** playback device 86 displays text information according to the manipulations of the controls by the user. For example, when the user presses forward playlist button 176 on remote control 90, an IR stream is transmitted from remote control 90 and is received by IR subsystem 104 on **audio** playback device 86. This message is decoded by microprocessor 208 in **audio** playback device 86 as a forward select button selection, and an XML message 74 is sent from **audio** playback device 86 to core module 42 requesting

that a string of text that represents the next playlist title be sent via high-speed LAN 70 to **audio** playback device 86. Core module 42 receives XNM message 74 and sends the text string representing the next playlist to **audio** playback device 86, via high-speed LAN 70.

Microprocessor 208 processes this XML message 74 and displays the text string on **audio** playback device 86 display 170.

When play button 192 is pressed, again IR subsystem 104 triggers XML formatted message 74 to be sent to core module 42 stating that play button 192 was activated. Core module 42 determines the present file or stream listing on **audio** playback device 86 display 170, and initiates a stream of that file or Internet 8 stream to **audio** playback device 86.

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The other method for controlling client devices is to use a device controller GUI on PC 34. Device controllers are launched... ..right clicking on client device control bar 26 on console 16 associated with the specific device that is to be controlled. FIG. 15 shows the **audio** playback device controUer 60 and FIG. 16 shows the Internet clock device controller 88. The function of a device controller is to remotely control networked... ..devices 78, and to also allow for the setting of certain preferences and features for client devices 78. Thus continuing with our previously mentioned examples, **audio** playback device controller 60 is used to directly control **audio** playback device 86, such as to instruct **audio** playback device 86 to play, stop or pause on a particular track. Similarly Internet Clock controller 88 is used to directly control Internet Clock 82... ..clock on or off, or set the date or time, as shown in FIG. 16.

The following is a list of controls and features for **audio** playback device controller 60: a play/pause button 80 (holding down play button causes the player to fast forward, playing brief samples of the **audio** file at muted volume); a stop button 76; a track backward button 72; a track forward button 84; a balance slider 94.

The following is... ..features on Internet clock controller 88.

ramp display back light during wakeup routine (slowly increase the light of the display during the wakeup routine); ramp **audio** volume during wakeup routine (slowly increase the volume of the device during the wakeup routine; length of dwell time for snooze button (the length of... ..button 120 is activated; deactivate snooze button 120 (no snoozing); length of time for sleep mode (the length of time Internet clock 82 will play **content** 10 when activated at night while the user is falling asleep). The function controls now shown in FIG. 16 are available on an additional menu accessed by activating "more" button 1 12.

Preferred Embodiment - Automatic Mode, Playback

In automatic mode, **content** 10 that the user has selected for playback in the **content** editor is sent automatically to the playback device, based on some prescribed time setting that was pre-set by the user. A scheduling function in... ..the current

state of PC 34 system timer. When a match occurs between a time input in system control application database 96 and the current state of PC 34 system timer, core module 42 initiates the delivery of **content** 10 to client device 78. In the case where **content** 10 is a stream from a URL on Internet 8, a connection is created by core module 42 between the streaming URL via broadband communication link 14, through storage gateway 38, and via LAN 70 to client device 78.

#### Preferred Embodiment - Automatic Mode, Caching

Certain **content** objects 20 designate a location for file-based **content** 10 that changes on a regular basis. In this case, a specific file is a **content** object 20 instance that is cached on local PC 34 or storage gateway 38 and streamed to client device 78. For example, **content** 10 for Internet clock 82 may include a digital **audio** file with news located on a server on Internet 8 that may be **updated** every four hours. If **content** object 20 instance is a file designation that is not local, the scheduling function in core module 42 will periodically check the file at its... ..an "always-on" device. Therefore the scheduling function running on core module 42 on storage gateway 38 can be set to automatically access and acquire **content** 10 on Internet 8 at times when wide area network bandwidth is less expensive, such as overnight or during midday. Core module 42 on storage...processed and presented to the user and other interested entities at both PC 34 and on the web. FIG. 12 shows tag button 188 on **audio** playback device 86. FIG. 13 shows tag button 128 on Internet clock 82. During the playing of **content** 10, activation of tag button 128 by the user results in a transmission of XML message 74 back through LAN 70 informing core module 42... ..74 may include but is not limited to: metadata or meta-tags included in the file or stream (characters or images); the file name if **content** 10 is a file; the URL or IP address of the stream if **content** 10 is a stream; time; date; and user identifier.

The transmission of tag XML message 74 can have different results. FIG. 14 shows that the... ..an integral wireless LAN transceiver 58 to provide LAN 70 connectivity, that is added to an existing gateway 150 device for the purpose of adding **content** 10 mass storage and serving capability. FIG. 23 shows a network topology including PC 34, a conventional gateway 150 that is a DOCSIS cable modem... ..and functions provided by a system using a storage gateway 38 are provided with the use of a storage gateway peripheral 134.

#### Alternative Embodiment - GUI **Content** Editors on Storage Gateway or Gateway Storage Peripheral

The **content** editors can be programmed and executed across the network as Java applications stored on storage gateways 38 or on a storage gateway peripheral 134 device... ..display and input peripherals such as a keyboard and a mouse, and that has a Java Virtual Machine (JVM), would be a viable client device **content** programing, set-up, and control workstation. This embodiment could also be implemented so that it was entirely browser-based. A user

could access the device **content** editors within a browser window, with the application

running as a Java applet.

#### Alternative Embodiment - Digital Image Player and Sequence Editor

Another device that can... ..clock 82 to present a timed sequence of digital images on LCD 132 when Internet clock 82 is not being used for presentation of other **content** 10. Internet clock 82 can be set up to present digital images either automatically or under direct control of the user.

The user could attach...via the left-mouse-click on Internet clock 82 client device control bar 26 located on console 16.

Launching this editor is similar to launching **audio** device **content** editor 24, described previously. FIG. 18 shows an example of digital image editor 96. There is a frame into which the user can drag-and... ..launched by leftclicking on the "digital image player" client device control bar 26 on console 16.

#### Alternative Embodiment - Digital Video Caching

The system for providing **content** distribution, management, and interactivity for thin client devices can also be used to access, store, and serve digital video, such as movies, TV shows, and other video **content**. User's make selections on a web site as disclosed herein. Digital video files, such as DVD movies are then downloaded and stored on user... ..for peak times of wide area network usage, and can be increased during off-peak times.

#### Alternative Embodiment - Automated PC-only

The system for providing **content** and other information services to thin client devices can be implemented with just PC 34. System control application 19 resides on hard disk drive... ..those provided by core module 42 and GUI module 46. System control application database 96 also resides on PC 34, as well as all cached **content** 10. In this embodiment, LAN 70 is established by the use of a HomeRF wireless LAN access point 54. The wireless LAN access point 54... ..of PC design. In the case of a bus card, there would be an external antenna.

The automated services function of core module 42, whereby **content** 10 is automatically accessed, downloaded and cached on PC 34, and whereby **content** 10 is 33 automatically streamed to client devices 78, is facilitated if PC 34 is always on. or if PC 34 can be automatically...be described. PC 34 exists in the user's home, or other location where there is a desire for the ability to play Internet 8 **content** or data 10, including multimedia **content**, on one or more standalone devices apart from PC 34. There is a setup activity for the system requiring several one-time actions by the... ..information appliance setup website associated with the system and the devices. This website would have a particular URL that would be supplied in the instruction **materials** that come with wireless LAN access point 54 or client device 78. Using the browser, or other interface to the website server, the user would... ..device 78. Here the user's account is referenced as well as the identifying serial number of user's client device 78. A volume of **content** 10

that the user specified to be automatically delivered to Internet clock 82 is downloaded to user's PC 34, where it is stored on the PC 34 hard disk drive 30. After the **content** has completely downloaded, PC 34 terminates the connection to the ISP, and shuts down. This occurs at 1:30am. At this point PC 34 may... ..system establishes a connection to Internet clock 82. At 6:00am, the specified wake up time of the user, PC 34 initiates the transfer of **content** to Internet clock 82. This **content** is presented to the user as sound and images, waking up the user.

#### Alternative Embodiment - Web-based System Control Application

In an alternative embodiment there... ..a website that is accessed for the purpose of downloading and setting up the system control application 18 on PC 34, and for controlling the **content** that ...accessible from any computer that is connected to the 36

Internet 8 and includes a browser. The website also contains a database for storing the **content** preferences of the user or owner of client devices 78. These **content** preferences include pointers to the locations of the **content** entities, such as **audio** files, video files, or text files, on Internet 8 that the user had specified to be played on client device 78. The website could also... ..non-volatile memory an identifying serial number, which is used to identify webpad 92 on the wireless network, and is also used to coordinate the **content** that is specified by the user to be sent to and cached at the local PC 34, and ultimately sent wirelessly to webpad 92. For example, users can access cached **content** on PC 34 or storage gateway 38 such as digital, searchable Yellow Pages or White Pages, and other reference databases.

Additionally, webpad 92 can access... ..storage gateway 38 as a router.

Furthermore, webpad 92 can be used to control other client devices 78. For example, a webpad 92 version of **audio** device **content** editor and **audio** device controller GUI allow the user to access playlists and tracks, and control **audio** playback device 86 in real time while away from PC 34. XML messages 74 are sent from webpad 92 to PC 34 or storage gateway 38, processed by core module 42, and appropriate MAL messages are sent to **audio** playback device 86.

#### Alternative Embodiments

LAN 70 could be implemented with a number of different of wireless systems such as 802.11b, 802.11...

#### Claims:

1. A system for channeling **content** to computer devices, comprising in combination, a connection to the Internet, a local server with a mass storage device, a web site for providing access to **content** selections, a means for associating a **content** selection for streaming with a client device, a local area network connecting the local server to a client device, and a client device for receiving and decoding **content** selections.
- 2 The system of claim 1 where the client device is a digital **audio** decoder.

- 3 The system of claim 1 where the means for associating a **content** selection for streaming with a client device is a drag and droppable **content** object.
- 4 The system of claim 1 where the mass storage device is a personal computer.
- 5 The system of claim 1 where the mass... ..area network is a wireless network.
- 8 The system of claim 1 where the client device is a webpad.
- 9 A method for delivering digital **content** from to client computer devices including: a. Associating a **content** selection with a client device. b. Activating the streaming of the **content** selection to the client device, via a local storage device. 10. The method of claim 9 where the association between a **content** selection and a client device is a drag and drop interface between and web page and a **content** editor on a PC. 11. The method of claim 9 where the client device is a digital **audio** decoder.
- 12 The method of claim 9 where the activation of the streaming of the **content** selection is performed at the client device.
- 13 The method of claim 9 where the local storage device is a storage gateway.
- 14 The method of claim 9 where the local storage device is a storage gateway peripheral.
- 15 A system for channeling **content** to client devices, comprising in combination, 39a local computing and mass storage device comprising a hard disk drive, a microprocessor, and a local area network connection, a broadband connection for connecting the local computing device to the Internet, **Content** objects located on a web page on the Internet, a means for associating **content** objects located on the Internet with **content** object editors on the local computing device whereby **content** represented by **content** objects is downloaded and stored on the local computing device, and, a means for streaming **content** stored on the local computing device to client devices.
- 16 The system of claim 15 where the local computing device is a storage gateway.
- 17... ..system of claim 15 where the local computing device is a storage gateway peripheral.
- 18 The system of claim 15 where the means for associating **content** objects on the Internet with **content** object editors on the local computing device is a drag and drop interface.
- 19 The system of claim 15 where the client device is a **audio** playback device.
- 20 The system of claim 15 where the client device is a webpad.
- 40

Country	Number	Kind	Date
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### Detailed Description:

...or merely activating speed motor 226 and/or incline motor 228, processor 214 delivers the audio and video signals received through communication interface 210 to **audio**/video controller 212.

**Audio**/video controller 212 manipulates the signals received and passes the **audio** signal to **audio** output device 96 and the video signal to video output device 94.

Optionally, processor 214 may send portions of the **audio** or video signals to the output devices 218 to provide the user with multiple sources of representations of the current operating parameters of treadmill 12, or exercise device.

In another alternative configuration of the present invention, the **audio**, video, and control signals received by communication interface 210 are delivered to processor 214 for manipulation and delivery to **audio**/video controller 212. In such a case, the video data is displayed on video output device 94 while the **audio** signal including the control signal is transmitted to **audio** output device 96. In this 1 5 configuration, **audio** input device 90 or a second **audio** input device (not shown) is configured to receive various control signals that are delivered by **audio** output device 96 and pass those back to processor 214. The control signals are subsequently decoded and treadmill processor 220 may activate speed motor 226 and/or incline motor 228 in accordance with the delivered control signals.

Generally, communication interface 210, processor 214, **audio**/video controller 212, treadmill processor 220, and/or control signal decoder 224 are collectively and individually examples of a controller, responsive to the packetized second...parameters of user module 252. For example, user interface 262 may include one or more interface devices as discussed previously, such as one or more **audio** and video input devices 90, 92, output devices 68a, 70a, 72a, 74a, 76a, and 80a, and one or more **audio** and video output devices 94, 96 as described earlier herein. Therefore, user interface 262 enables the user to visually and/or audibly communicate with the...252 via network 16 is communication

module 254. As shown, communication module 254 includes a communication user interface module 272 that transceives data, such as **audio**, video, and control signals between user module 252 and communication module 254. Communication user 1 5 interface module 272 may have various forms, such as...Fig. 8), so long as control signal generation module 282 is capable of creating one or more control signals that may be synchronized with the **audio** and video signals retrieved from memory 194, 196 or received through communication trainer interface 276 from trainer module 256.

Trainer module 256 has substantially the... ..includes a control signal generation module 292. Control signal generation module 292 enables trainer module 256 to generate control signals that are synchronized with the **audio** and/or video signals that are transmitted from trainer module 256 to user module 252. Control signal generation module 292, therefore, is substantially the same as control signal generation module 282.

The synchronization of the **audio** and/or video signals with the control signals may be achieved in a variety of different manners. For example, in one embodiment of such synchronization, the **audio** and/or video signals indicate that the treadmill speed will move from 1 mile per hour to 5 miles per hour. The control signal may... ..5 miles per hour, but may instead ramp gradually from 1 mile per hour to 5 miles per hour. Optionally, the control signal and video/**audio** signals are synchronized such that the exercise device substantially instantaneously increases the speed of the treadmill upon receipt of a message requesting such an increase...herein with reference to computer 14.

As depicted in the illustrative configuration of Figure 12, iFit.com website 300 may include login-registration module 302, **audio** program module 304, video program module 306, health information module 308, consumer purchase module 310, personal training module 312, competition module 314, diagnostic module 318... ..registration module 302 is configured to obtain the necessary registration and login information from a user wishing to use communication module 254 and the various **audio**/video and literary information contained therein, with their exercise device. Consequently, login-registration module 302 provides access to the appropriate areas of iFit.com website...within the city or state of the place where the individual commonly visits or exercises.

Referring back to Figure 12 communication module 254 includes an **audio** program module 304. Generally, **audio** program module 304 is configured to provide the user with multiple selections of **audio** programs that are available for particular types of exercise device. Additionally, **audio** program module 304 allows the user to purchase copies of the **audio** programs that may be performed on line.

As depicted in Figure 14, **audio** program module 304 allows the user to select from various types of exercise devices with associated **audio** programs, As illustrated, **audio** program may have separate information for treadmills, ellipticals, cycles, steppers, hikers, climbers, Nordic type exercise devices, and various other types of exercise devices known by one skilled in the art. As such, a user may manually select 1 5 the particular exercise device to be used. Alternatively, **audio** program module 304 may dynamically select the particular exercise device and the various **audio** programs applicable to the user's exercise device by analyzing the user information gathered by login-registration module 302. No matter the manner by which... ..device is selected, Figure 15 depicts an illustrative flow diagram that depicts possible user selections and data flow related to accessing the one or more **audio** programs available through communication system 18, and more specifically iFit.com website 300.

As shown, upon selecting a particular exercise device (whether manually or

dynamically... ..too great, as depicted by decision block 354. For example, if the individual wishes to view the exercise program profile, communication module 254 packetizes an **audio** and/or graphical representation of the exercise program selected (i.e., the maximum speed, maximum incline, time to perform the exercise program, amount of time... ..select to begin the online exercise program, as depicted by decision block 358. If the user selects in the affirmative, communication module 254 delivers the **audio** signals, with control signals, to user module 252 in accordance with the selection. Consequently, communication module 254 may download the entire **audio** program to user module 252, or alternatively "stream" the **audio** signals to thereto by a manner known by one skilled in the art. Upon completion of the program, as depicted by block 360, the user is given the opportunity to purchase their own copy of the **audio** program just performed, as represented by decision block 364. In the event they decline to purchase the program session, the particular **audio** program session is completed and the user is optionally returned to the homepage of 1 5 iFit.com website 300.

Referring again to decision block... ..is in the negative, the user is returned to the homepage of iFit.com website 300. Otherwise, if the user wishes to purchase the program, **audio** program module 302 gathers account information, as depicted by block 366 and media format, such as CD, tape, MP3 file, or the like, as depicted by block 368. Furthermore, **audio** program module 304, through video output device 90 or monitor 166 displays the pricing guides for various types of media 'and/or associated mailing costs, as depicted by block 370. Alternatively, **audio** program module 304 may interface with an accounting module that performs the function of storing and collecting account information and purchase information from any of... ..a centralized accounting module that is accessible by one or more of the various modules forming communication module 30 to 254. Furthermore, in another alternate configuration, **audio** program module 304 may communicate with login-registration module 304 and obtain account information therefrom or directly access the information from the portion of memory... ..12, communication module 254 further includes video program module 306. Video program module 306 uses a similar flow of information and related functional operations as **audio** program module 302; however, video program module 306 merely gives video options to the user, whether such video options include or exclude **audio** programs transposed or incorporated therein.

...a music type, video program module 306 enables a user to select a video program session and receive real-time or streamed video and/or **audio** signals. Similarly, in the event the user wishes to purchase the video program, video program module 306 enables the user to select a particular type... ..Communication module 254 may optionally include a consumer purchase module 310. Consumer purchase module 310 is configured to enable a user to purchase exercise equipment, **materials** such as books and instructional **materials**, nutritional supplements, and the like online. Consumer purchase module 310 may, therefore, link directly to one or more affiliates of communication module 254.

Alternatively, consumer... ..with a personal trainer. For example, video conferencing module 392 may include various hardware and/or software modules that: (1) assist with

data transmission of **audio** and/or video signals between user module 252a-252n and trainer module 256a-256n; (2) assist with image and voice capturing; (3) packetizing or depacketizing...428.

Synchronization prepares the communication links between each competitor and generates the displays and data flow therebetween, such as but not limited to the **audio** and video data flows and displays that enable each competitor to view their progress against each other. For example, the display may include a racing...the like.

Referring again to Figure 12, according to another aspect of the present invention, communication module 254 enables a user to prepare a personalized **audio** and/or video exercise program. Communication module 254, therefore, includes program creation module 318. Program creation module 318, referring now to Figure 19, enables a user to select an **audio** program session, as depicted by decision block 470 and/or a video program session, as depicted by decision block 478. In the event that only an **audio** program session is desired, the user initially selects the type of exercise device that the program is to be used, such as but not limited to...programming, abstract images, and the like. It is preferred that each video presentation includes a specific sound track; however, the user may modify a particular **audio** track that is synchronized with the video presentation or optionally generate a completely new **audio** track, according to block 484. Once the video program, and optional music program, is selected, the user may subsequently generate an exercise profile, as represented by block 486, in a similar manner to that described above. As with the **audio** program, the video program may be stored for use at subsequent times, as depicted by block 488.

The presently described invention may be used in...8) advertisements that may be appropriate for the user to view in light of the selections made during the login process. In one embodiment, an **audio** and video advertisement signal is delivered with the **audio** and video exercise programming to appear on user interface 262 (Figure 11). For example, a banner may appear on user interface 262 (Figure 11), and more specifically video display 94 (Figure 6) for the user. Such advertising may, alternatively, may take the form of an additional streaming, real time **audio** and video output that is linked to one or more national advertising agencies. In such a case, the banner may optionally appear for a few user with a list of various additional web sites where educational and exercise information, products, **materials**, and the like may be viewed and/or purchased.

With reference now to Figure 20, a master-slave system 500 is depicted that 1 5...by io engaging in communication other than real time.

Further, according to one aspect of the present invention, the devices disclosed herein can incorporate various **audio**/video features into the device or exercise device itself rather than having external **audio**/video features connected thereto. The exercise devices can also include sensors that track the activity level of an individual i 5 on the exercise device...device. The same web site provides access to various exercise programming. For example, the user may select live or recorded

programming or select competitive motivational **content**. Such competitive motivational **content** allows an individual to compare the amount of miles traveled on an exercise device against individuals throughout the world engaging in similar io activities. Therefore... ..two of more users may link their exercise devices directly without the need to communicate through the communication system or module.

Another type of motivational **content** may include one or more electronic magazines or books that a user may download to view while exercising. Yet another 1 5 type of motivational **content** or programming relates to the ability of the user to view an exercise profile representative of the exercise program currently being performed by the user... ..overlay the visual image that the user is watching, whether the visual image is a television broadcast, webeast, or the like.

Another type of motivational **content** relates to various advertisements.

During the exercise program a user may receive commercial advertising through an advertising banner that may continuously or periodically appear on...at communication system 18, treadmill 20, or third party 21 for use in the performance of an exercise workout. These programs can include motivational 5 **content** with optional control signals that control the operation of treadmill 12. The control signals may or may not be synchronized with the motivational **content** based upon the particular motivational **content** and downloadable exercise program.

Therefore, each program can include an **audio** representation of a trainer performing an exercise workout, while providing encouragement and other motivational support, and/or control signals that vary one or more operating... ..can download exercise programs from one or more of the other systems or devices of system 600. For example, portable system 602 can download motivational **content** with associated control signals from communication system 18 through network 16 and personal computer 14. Although it is desirable that the motivational **content** includes synchronized control signals, one skilled in the art can appreciate that portable system 602 can receive motivational **content** without control signals, control signals without motivational **content**, or asynchronous motivational **content** and control signals.

As shown, portable system 602 can communicate directly with treadmill 12 and computer 14 to gain access to communication system 18. Further... ..300 (Figure I 1) hosted on communication system 18, 1 5 download an exercise program, and perform the exercise program in accordance with the motivational **content**, without the need to own or have access to a treadmill that can communicate with communication system 18. In this manner, a user can experience... ..a more detailed representation of one illustrative portable system 602 of the present invention is depicted. Portable system 602 includes a control device 604, an **audio** delivery device 606, and a sensing device 608.

Although each of these devices 604, 606, and 608 are illustratively separated one from another, various other memory, magnetic storage disk, optical storage media, or the like.

The stored exercise program, in this illustrative configuration, can include motivational **content** and control signals that operate treadmill 12 in synchronization with the motivational **content**. For instance, the motivational **content** can be an **audio** program having one of a variety of formats, such as a MP3 file, a wave file, an **audio** file, a MIDI file, and the like. Similarly, the control signals forming part of the exercise program can be audible or inaudible signals that cause... ..the user to manipulate the operation of the exercise mechanism. In still another configuration, the exercise program can only include control signals with no motivational **content**, such as when the motivational **content** is delivered to control device 604 as a separate file written or stored on a storage medium.

As illustratively shown in Figure 22, control device... ..while another button 614e can place control device 604 into an "off" or inoperable status. Further, other buttons can: (i) begin the delivery of motivational **content** and/or control signals to treadmill 12; (ii) initiate storing or downloading of motivational **content** and/or control signals to control device 604; (iii) receive data representative of any measurable parameter detected by sensing device 608, **audio** delivery device 606, or one or more sensors coupled or communicating with treadmill 12; (iv) deliver motivational **content** to **audio** delivery device 606; (v) display information or data associated with the motivational **content**, the control signals, or any of the measurable parameters of the exercising user or the exercise device; (vi) and the like. Other functionality associated with... ..shown in Figure 22, control device 604 includes ports 616, 618, and 620.

Port 616 is configured to allow control device 604 to communicate with **audio** delivery device 606. Subsequently, the particular type of port forming port 616 can vary based upon the configuration of **audio** delivery device 606. For instance, port 616 can accommodate an **audio** jack, such as but not limited to an RCA-type **audio** jack, and the like. Alternatively, control device 604 and **audio** delivery device 606 can be linked via a connectionless link, such as by a radio frequency (RF), infrared (IR), or other wireless-type communication line... ..sensors formed in treadmill 12 as discussed herein. Further, port 618 can transmit control signals to treadmill 12, such as those synchronized with the motivational **content** stored in control device 604. Consequently, port 618 can create a physical connection or a connectionless connection with the other modules, components, devices, and systems...In another configuration, display 622 can act as an input device when display 622 is a touch sensitive control.

Communicating with control device 604 is **audio** delivery device 606.

Generally, **audio** delivery device 606 is configured to deliver motivational **content** stored within control device 604 to the exercising user of treadmill 12. **Audio** delivery device 606, therefore, can include one or more speakers that provide **audio** representations of the motivational **content** directly to the user. For example, as shown, **audio** delivery device 606 is in the form of a headset 624, having speakers 626, which may be worn by the user.

**Audio** delivery device 606 can communicate with portable system 602 via a

variety of different types of communication line connection. As illustrated in Figure 22, **audio** delivery device 606 includes an **audio** jack that engages with port 616 included within portable system 602. Such an **audio** jack can be an RCA-type **audio** jack, and the like. Alternatively, control device 604 and **audio** delivery device 606 can be linked via a connectionless link, such as by a radio frequency, infrared, or other wireless-type communication line connection.

It can be appreciated by one skilled in the art, that various other configurations of **audio** delivery device 606 are capable of performing the desired function. For example, instead of delivering **audio** signals to the user via both ears, the **audio** signals can be delivered to only one of the user's ears. Further, **audio** delivery device 606 need not be worn by the user, such as on the user's clothing, belt, head, or the like, but can take... ..control device 604 or in a speaker remote from control device 604 and/or treadmill 12. For instance, control device 604 can communicate directly with **audio** and/or video equipment typically available within a user's home, at a gym, at some other exercising location, and the like.

According to another aspect of the present invention, **audio** delivery device 606 includes a sensor 630. Sensor 630, in this illustrative configuration, includes two contacts; a first contact 632a and second contact 632b. Sensor... ..pulse of the user via the user's ear. In this manner, sensor 630 can detect exercising data or information of the exercising user.

Consequently, **audio** delivery device 606 can deliver the collected data to control device 604 for future use, i.e., uploading such data or information to communication system 18, treadmill 20, third-party 21, and the like.

The inclusion of sensor 630 within **audio** delivery device 606 is an advance over the existing manners of obtaining the pulse rate or other physical data related to 2o an exercising user...the user is exercising, such as treadmill 12.

In another configuration, portable system 602 can include control device 604 and sensing device 608, while using **audio** and/or video delivery devices commonly 3o existing in a users' home, such as televisions, radio transceivers, removable storage devices, optically read or magnetic media players, and the like.

Referring now to Figure 23, a schematic representation of portable system 602 is illustrated. As shown, control device 604 communicates with **audio** delivery device 606 and optionally sensing device 608 as before. As shown, control device 604 includes a user display 640 and a user interface 642... ..more flash memory cards, RAM, ROM, programmable RAM or ROM, and the like. Generally, data storage 646 is configured to store exercise programs with motivational **content** and/or control signals received from communication system 18, e.g., the iFit website, the exercise data obtained from sensor 630 of **audio** delivery device 606 and sensing device 608, and any measurably parameter of the user and/or the treadmill sensed by one or more different sensors... ..According to another aspect of the present invention, control device 604 io includes an interface 648. Interface 648 allows control device 604 to communicate

with **audio** delivery device 606 and sensing device 608. Therefore, interface 648 performs the functions of port 616 and optionally 618 described above with respect to Figure... ..It can be understood that the functionality of interface 648 can be executed by a plurality of interfaces. For instance, interface 648 can include an **audio** interface and a data interface. The **audio** interface being capable of transceiving data between control device 604 and **audio** delivery device 606 in an **audio** format, while the data interface transceives data between control device 604 and sensing device 608 and optionally treadmill 12, computer 14, communication system 18, treadmill... ..630, control device 604 includes the various components of sensing device 608 and/or sensor 630. Similarly, when control device 604 partially or completely incorporates **audio** delivery device 606, control device can include sensors 630 (Figure 22).

Communicating with control device 604 is **audio** delivery device 606. **Audio** delivery device 606 includes an appropriate interface 652 to allow communication between control device 604 and **audio** delivery device 606. For example, interface 652 can take the form of one or more **audio** jacks, as discussed herein, or other interfaces so long as such interfaces are complementary to those of control device 604.

Further, as mentioned above, **audio** delivery device 606 can include (i) one or more **audio** outputs 654, such as but not limited to two speakers (Figure 22); (ii) one or more sensors 656 for sensing measurable parameters of the exercising user; (iii) one or more processors 658 that manage the delivery of **audio** signals or data between control device 604 and **audio** delivery device 606 and facilitates the delivery of exercise data tracked by sensor 656; and (iv) a data storage 660 for storing **audio** signals or data and the data representative of the measurable parameter sensed by io sensor 656. Each of the above can have a similar configuration to the interfaces, **audio** outputs, processors, sensors, and data storages discussed herein. Generally, each of the above can have various other configurations known to one skilled in the art... ..an interface 670 that 1 5 assists with the transmission of sensed data to control device 604, and subsequently to communication system 18. As with **audio** delivery device 606 sensing device 608 includes at least one processor 672, at least one data storage 674, and at least one sensor 676. Sensor... ..parameter as those sensed by sensor 656.

Generally, portable system 602 can be used in a variety of manners to provide a user with motivational **content** and optional access to iFit website 300 (Figure 12).

In one configuration, a user connects control device 604 to personal computer .1 4.

Subsequently, control... ..604 through computer 14 accesses communication system 18, treadmill 20, or third-party 21 and hence accesses iFit website 300. The user, therefore, can obtain **audio** exercise programs from Wit website 300 in a manner similar to that described above.

For example, once a user connects to Wit website 300, and optionally logs in, the user can review the available **audio** programs and download one or more **audio** program files from **audio** program module 304 (Figure 14). As a user selects the **audio** program files,

the user optionally specifies the type of exercise device being used. Consequently, communication system 18 displays **audio** program files specific to the type of exercise mechanism or equipment available to the user. The user can then download a copy of the motivational **content**, such as in an NIP3, WAV, AU, MIDI, or other formats, optionally with control signals.

Depending on the particular configuration of the present invention and the capabilities of portable system 602, either personal computer 14 or control device 604 can retrieve the downloaded **audio** program file and store the same in data storage 646. Consequently, control device 604 can optionally directly communicate with communication system 18, such as when... ..case where personal computer 14 downloads the program file, a user can cause control device 604 to communicate with personal computer 14 to retrieve the **audio** program file or optionally retrieve a removable data storage component, such as an N4P3 cartridge or memory stick from personal computer 14 and insert the... ..604 or in non-removable data storage of control device 604, the user can begin to exercise on treadmill 12 in accordance with the motivational **content** and optional control signals stored in the data storage.

For discussion purposes, let us assume that only motivational **content** is downloaded to control device 604. This is illustrative of the case where the available treadmill 12 is iFit incompatible. Consequently, the user accesses iFit... ..300 (Figure 12) through personal computer 14, which is not connected to treadmill 12, and 215 manually operates the treadmill in accordance with the motivational **content** delivered to the user. It is understood, however, that an exercise program with only motivational **content** can be used with an iFit compatible treadmill, so long as the user manually controls the exercise mechanism and no connection is needed between treadmill... ..program or routine, while sensors included within treadmill 12 track one or more operating parameters of treadmill 12. As data is collected, sensing device 608, **audio** delivery device 606, and optionally treadmill 12 deliver such data to control device 604 where the data is stored in preparation for uploading to communication system 18, treadmill 20, and/or third-party 21. Optionally, sensing device 608, **audio** delivery device 606, and optional treadmill 12 can deliver the gathered data when the user has completed the exercise workout.

Following completion of the exercise the personal trainer can develop various other user-specific **audio** programs that the user can access when they next log onto iFit website 300. Such user-specific exercise programs or routines can be stored or... ..and stored within data storage 390.

Alternatively, iFit website 300 can automatically analyze the exercise data uploaded from control device 604 to automatically develop other **audio** programs, update the distance traveled by the user during the exercise program to update information associated with a race around the world competition, race against... ..particular configuration, treadmill 12 is optionally disconnected from communication system 18, e.g., iFit website 300. In a manner similar to that described above, motivational **content** and control signals are retrieved from communication system 18 via personal computer 14. Following retrieval

and downloading of the appropriate motivational **content** and other **audio content**, such as one or more control signals, control device 604 directly communicates with the iFit compatible treadmill 12, such as via one or more of... from control device 604, such as from port 618 (Figure 22) to treadmill 12 to operate treadmill 12 in a synchronized manner with the motivational **content**. The operation of treadmill 12 can be either synchronized or asynchronous to the motivational **content** delivered to the user through **audio** delivery device 606. Alternatively, **audio** output can be delivered to the users through speaker 96 on control panel 22 (Figure 6).

On completion of the exercise program or routine, or... deliver the same to communication system 18.

In still another configuration, such as when treadmill 12 is connected to communication system 18 via network 16, **audio** programming, optionally with associated control signals, either synchronous or asynchronous with the **audio** motivational **content**, can be downloaded from communication system 18 to treadmill 12 and subsequently downloaded to control device 604 via a wireless connection, physical connection, such as...

### Claims:

...capable of storing an exercise program, the program comprising at least one of (i) at least one control signal and (ii) data representative of motivational **content**; and (c) a portable system in communication with the exercise mechanism 15 and the communication system, the portable system being capable of retrieving the... at least one measurable parameter of the user.

3 A system as recited in claim 1, wherein the portable system comprises a control device, an **audio** delivery device in communication with the control device and a sensing device in communication with the control device.

4 A system as recited in claim... in claim 3, wherein the control device is a cordless telephone.

7 A system as recited in claim 1, wherein the portable system comprises an **audio** delivery device, the **audio** delivery device comprising at least one speaker.

8 A system as recited in claim 1, wherein the portable system automatically changes the one or more operating parameters of the exercise mechanism in synchronization with the motivational **content**.

9 A system as recited in claim 1, wherein the portable system comprises:  
(a) one or more storage devices adapted to store one or more **audio** signals forming the motivational **content**; and (b) a control processor configured to deliver the one or more **audio** signals to the **audio** delivery device.

10 A system as recited in claim 1, wherein the portable system communicates with the communication system via a network.

11 A system... configured to receive an exercise program from the remote communication system; (b) a delivery device communicating with the control device, the delivery device presenting an **audio** representation of the

exercise program to the user; and (c) a sensor communicating with the user of the exercise mechanism, the sensor configured to track... control device directly communicates with the communication system.

25 A system as recited in claim 19, wherein the exercise program comprises data representative of motivational **content** and at least one control signal.

26 A system as recited in claim 25, wherein the exercise mechanism comprises at least one operating parameter, the... a removable memory 15 configured to store an exercise program receivable from the remote communication system, the exercise program comprising data representative of motivational **content** and at least one control signal; (b) an **audio** delivery device communicating with the control device, the **audio** delivery device comprising at least one speaker capable of delivering the motivational **content** to the user; and (c) at least one sensor coupled to the user of the exercise mechanism, the at least one sensor capable of tracking... least one measurable parameter to the control device for delivery to remote communication system.

33 A device as recited in claim 32, wherein the motivational **content** comprises an **audio** signal.

34 A device as recited in claim 32, wherein the at least one control signal is synchronized with the motivational **content**.

35 A device as recited in claim 34, wherein the control device delivers the at least one control signal to the exercise mechanism, the at... recited in claim 36, wherein the control device automatically changes the one or more operating parameters of the exercise mechanism in synchronization with the motivational **content**.

39 A device as recited in claim 32, wherein the control device is an MP3 player.

40 A device as recited in claim 32, wherein...

**Dialog eLink:** [Order File History](#)  
7/K/51 (Item 13 from file: 349)  
DIALOG(R) File 349: PCT FULLTEXT  
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	Country	Number	Kind	Date
Patent				19

### English Abstract:

...server of the service provider in order to place or control the campaign. Moreover, synergy effects can be exploited due to combined use of a **content** database (Fig. 2).

### Detailed Description:

...sometimes referred to as an intranet), to global data networks. One of the more popular of such global data networks is referred to as the **Internet**, an interworking of governmental, **educational** and commercial networks and servers throughout the world. Recently, however, the Internet has evolved to support electronic commerce, sometimes referred to as e-commerce. Electronic commerce... ..based on profiles that have been developed for such customers.

Recommendation services are also common for recommending web sites, articles and other types of informational **content** to users.

Document WO 00/1 7792 discloses a collaborative recommendation service which generates recommendations using a previously generated table which maps purchased items to...at a customer company to activate and control marketing or other information delivery campaigns.

The predetermined delivery parameters may comprise at least one of a **content** of a subscriber-specific information, a data service used for the delivering, a delivery address and a delivery date. The predetermined parameters may be individually... ..be selected from a plurality of access rights according to a predetermined allocation pattern or role matrix. As an example, an editor access right, a **content** manager access right, a project manager access right, a customer administrator access right, an operator administrator access right, and a super user access right may... ..particular, the editor access right may enable the network user to add and edit contents which can be incorporated into the subscriber-specific information, the **content** manager access right may enable the network user to add, edit and delete a **content**, the project manager access right may enable the network user to add and edit a campaign and a **content** and to deliver a campaign, the customer administrator access right may enable the network user to add, edit and delete a campaign, a **content** and a subscriber, to reactivate a campaign and a **content** stored in an archive, and to deliver a campaign, the operator administrator access right may enable the network user to add, edit and delete a campaign, a **content** and a subscriber, to reactivate a campaign and a **content**, to deliver a campaign, and to add, edit and delete new customers to which the user-specific access right is granted, and the super user access right may enable the network user to add, edit and delete a campaign, a **content** and a subscriber, to reactivate a campaign and a **content**, and to deliver a campaign. Thereby, the system operator or a registered service customer may grant individual access rights to employees or other system users... ..as the service customers are able to start, stop and pause a campaign at any time.

Furthermore, the user interface may provide access to a **content** manager function for collecting, editing, blocking, and deleting contents provided for the subscriberspecific information in a **content** database. In particular, the **content** manager function may be adapted to store for each **content** an information regarding a category, a type, a creation date, an activation date, and an expiry date.

Additionally, the **content** manager function may be adapted to mark an expired **content** as inactive and to automatically transfer the expired **content** into an archive. The **content**

may be stored and imported in various formats. Thus, by providing the **content** manager function, the service operator may assist its service customers in co-operation with major publishing companies to enrich customersubscriber-communications with valuable **content** and topics. Due to the contact to major publishing companies, up-to-date information and data is available in the storing means at any time. Any type of **content** such as text, **audio** and video data can be collected in the storing means or **content** database, categorized and retrieved at any time by the service operator or any network user ...access right. Furthermore, service customers sharing the same target groups may co-operate to create synergy effects by providing access to their contents in the **content** database. A filter function may be provided to achieve an exclusive **access** based on a link structure **between** contents, campaigns and/or customers. Thereby, the **access** to the **content** or customer databases can be controlled.

Furthermore, the user interface may provide access to a subscriber management function for storing personal data, preferences of a... ..information can be adapted to the individual interests of the subscribers.

Additionally, the user interface may provide access to a shuttle function for assembling a **content** into an individual newsletter or an e-mail for each subscriber.

In this case, the shuttle function may generate a graphical or numerical representation of... ..an access menu of a subscriber management function according to the preferred embodiment, Fig. 6 shows a flow diagram of an access menu of a **content** management function according to the preferred embodiment, Fig. 7 shows a flow diagram of an access menu of a campaign management function according to the... ..e-mails or the like), a service operator SO responsible for the operation of the delivery service, and information sources 1, to 1, for providing **content** information to be stored in a **content** database and incorporated into the subscriber-specific information. The customers may access then the network via respective customer terminals C, to Cn, and the subscribers... ..to Sm, the information sources 11 to 1 k or the service operator SO. The Web server application is arranged to access databases which include **content** information and delivery parameters required for delivering a subscriber-specific information for a campaign to specific ones of the subscriber terminals S, to Sm based...a network user or the service operator to control a specific campaign defined by respective delivery parameters stored in a subscriber database 140 or a **content** database 1 50. The interface section 1 05 provides access to predetermined functions or units of a control section 1 1 0, which comprises a... ..to corresponding delivery parameters. The contents available for assembling a subscriber-specific information such as a newsletter or an e-mail are stored in the **content** database 1 50 and are controlled by a **content** manager 1 14 which can be accessed by external information sources 300 so as to **update** the **content** database 1 50 with up-to-date information.

Additionally, the control section 1 1 0 comprises a shuttle unit 1 1 6 which enables a... ..user terminal 500 or a service operator terminal 400.

The delivery section 1 20 comprises a streaming unit 1 21 for delivering a video or **audio** information via the Internet to a Personal Computer (PC) 201 as e.g. one of the subscriber terminals 200. In addition thereto, an SMTP (Simple...additional rights including the associated rights can be individually selected with regard to the control of campaigns, the management of subscribers, the system administration, the **content** management and the shuttle function (step 304). Thereby, an individual access right profile can be allocated to a new user of the delivery system.

- 15... ..to the predetermined role. The predetermined roles may comprise a campaign manager role for managing specific campaigns, an editor role for editing specific contents, a **content** manager role for managing specific contents, a subscriber support role for providing subscriber support functions, a delivery role for controlling delivery of specific campaigns, a... ..their access rights. According to Fig.

4, an editor group can be selected, which is only allowed to add and edit contents stored in the **content** database 1 50. Furthermore, a **content** manager group is defined which is allowed to add, edit and delete contents from the **content** database 1 50. Further thereto, a project manager group is defined which is allowed to add and edit a campaign and a **content**, and to deliver a campaign. Additionally, a customer administrator group is defined which is allowed to add, edit and delete a campaign, a **content** and a user, to reactivate a campaign and a **content** from the archive, and to deliver a campaign. Moreover, an operator administrator group is defined which is allowed to add, edit and delete a campaign, a **content** and a user, to reactivate a campaign and a **content** from the archive, to deliver a campaign, and to add, edit and delete a new customer. Finally, a super user group is defined which is allowed to add, edit and delete a campaign, a **content** and a user, to reactivate a campaign and a **content** from the archive, and to deliver a campaign.

Fig. 5 shows a flow diagram of an access menu control of the subscriber manager function 1... ..according to a campaign. Additionally, categories of interest of the subscribers are stored in the subscriber database 1 40, wherein a corresponding link to the **content** database 1 50 may be established based the respective categories of interest.

Furthermore, the subscriber manager 112 is adapted to perform a statistical analysis of...information like age, hair color, etc. and may select specific subscriber interests indicated in the menu page. The new subscriber data are added to the **content** of the subscriber database. Moreover, the customer may define own menu fields for inputting a subscriber- or campaign-specific information which the customer wishes to... ..segmentation function for segmenting target groups for individual campaigns may be selected.

Fig. 6 shows a flow diagram of an access menu control of the **content** manager 114. The **content** manager 114 provides an interface to store all relevant information of contents for campaigns, i.e. information about the **content** source/supplier, the **content** category (e.g. "sports", "science", "computers", etc.), the **content** type (text,

video file, **audio** file, images, banners, etc.), creation date, activation and expiry date. Expired documents are marked as inactive and are automatically transferred into an archive which may be provided as a predetermined memory region in the **content** database 1 50. Furthermore, a specific **content** or piece of **content** can be blocked for a predetermined time period, i.e. the respective **content** or piece of **content** cannot be selected for a campaign during the predetermined time period. Moreover, a **content** supplier, a **content** category and/or - 19 a **content** status (e.g. received, edited, **revised**, enabled or the like) may be defined or selected for the new **content**.

The **content** manager 1 14 is arranged to store contents in all languages and character sets. **Content** can be imported in various formats, such as text, MS Additionally, a dynamic **content** function may be provided, wherein each subscriber receives an individually assembled and thematically adapted information (e.g.

newsletter). To achieve this, the subscriber may select... ..selected fields of specific interest are determined, e.g. by the profile generator 1 1 1 . Thus, the system is able to adapt the delivered **content** to the backclick behaviour of the subscribers. This can be achieved by supplying a corresponding information from the profile generator 1 1 1 to the **content** manager 1 14 which then correspondingly adapts the contents of the delivered information (e.g. newsletter). With every delivery of the newsletter to the subscriber, the **content** of the newsletter is thus increasingly adapted to the needs of the customer.

According to Fig. 6, the customer may select to add a **content**, to edit a **content**, to delete a **content** or to import a **content**, wherein the required authorization is initially checked in each of steps 601, 611, 621, 631, 641 and 651. When the customer selects to add a **content**, **content** control data are required to be input in - 20 step 602. The **content** control data comprise the **content** source/supplier, the creation date, the expiry date, a **content** category which may be selected, an inhibition period, a **content** status, a list of non-allowable campaigns for which the **content** is not allowed, and an indication whether an addition of the **content** is allowed (step 602). Then, the text, **audio**, visual or video information of the **content** can be inputted or edited e.g. with a keyboard or other suitable input devices.

When the customer selects to edit a **content**, a list of available contents is displayed on the menu page (step 61 2) and a **content** can be selected in step 61 3.

After selection, the respective **content** data is displayed (step 614), and the customer may modify the **content** data by a corresponding input operation (step 61 5).

When the customer selects to delete a **content**, the **content** list is displayed in step 622, and the customer may select a **content** in step 623. Then, the selected **content** may be deleted from the **content** database 1 50 by a corresponding input operation (step 624).

When the customer selects to import a **content**, a menu page is displayed where the customer may input a file name of the respective **content** file to be imported (step 632),

and the corresponding **content** control data are input as in step 602 (step 633). Additionally, the menu page may include a selection or input function for selecting a category for the imported **content** from a number of available categories. If a desired category is not available, a new category may be defined by a corresponding input function.

When... search function is selected, a search data input menu is displayed in step 642, wherein the search data may relate to a name of the **content**, a keyword, a creation date, a format, an activation date, an expiry date, a category, a supplier or a status. Based on the input search... customer, to edit a customer, to delete a customer, to display an archive, and to search for or to reactivate a campaign and/or a **content** based on the displayed archive. The corresponding authorization of the customer is checked in each of steps 701, 711, 721, 731, 741, 751, and 761... 1 1 6. The shuttle unit 1 1 6 provides a central information delivery control function offered to the customers as a Web-based service.

**Content** applied

by the **content** manager 114 under control of the campaign manager 113 is automatically assembled into a personalized, individual newsletter or e-mail for each subscriber. In particular...

## Claims:

...is a browser-based interface.

3 A method according to claim 1 or 2, wherein said predetermined delivery parameters comprise at least one of a **content** of said subscriber-specific information, a data service used for said delivering, a delivery address and a delivery date.

4 A method according to claim... comprise an editor access right which enables said network user to add and edit contents which can be incorporated into said subscriber-specific information, a **content** manager access right which enables said network user to add, edit and delete a **content**, a project manager access right which enables said network user to add and edit a campaign and a **content**, and to deliver a campaign, a customer administrator access right enables said network user to add, edit and delete a campaign, a **content** and a subscriber, to reactivate a campaign and a **content** stored in an archive, and to deliver a campaign, an operator administrator access right which enables said network user to add, edit and delete a campaign, a **content** and a subscriber, to reactivate a campaign and a **content**, to deliver a campaign, and to add, edit and delete new customers to which said user-specific access right is granted, and said super user access right enables said network user to add, edit and delete a campaign, a **content** and a subscriber, to reactivate a campaign and a **content**, and to deliver a campaign. - 30

11 A method according to any one of the preceding claims, wherein interfaces O 24, 1 22) for a... and operator interactions.

6 A method according to any one of the preceding claims, wherein said user interface (1

1 0) provides access to a **content** manager function (1 1 4) for collecting, editing, blocking and deleting contents for said subscriberspecific information in a **content** database (1 50).

7 A method according to claim 1 6, wherein said **content** manager function (1 14) is adapted to store for each **content** an information regarding a category, a type, a creation date, an activation date and an expiry date.

8 A method according to claim 1 6 and 1 7, wherein said **content** manager function (1 14) is adapted to mark an expired **content** as inactive and to automatically transfer said expired **content** into an archive.

9 A method according to any one of claims 1 6 to 18, wherein said contents can be stored and imported in... any one of the preceding claims, wherein said user interface (1 1 0) provides access to a shuttle function (1 1 6) for assembling a **content** into an individual campaign to be sent to subscriber.

23 A method according to claim 22, wherein said shuttle function (1 1 6) generates a... or 3 1, wherein said storing means (1 40, 1 50) comprises a subscriber database (1 40) for storing subscriber-specific data, and a **content** database (1 50) for storing **content** data.

33 A system according to any one of claims 30 to 32, wherein said predetermined delivery parameters comprise at least one of a **content** of said subscriber-specific information, a data service used for said delivering, a delivery address and a delivery date.

34 A system according to... claims 30 to 38, wherein said user interface means (105) is arranged to provide access to a shuttle means (1 1 6) for assembling a **content** stored in said storing means (1 50) into a campaign task selected from an individual newsletter, an e-mail, an SMS, a facsimile message, or...

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	Country	Number	Kind	Date
Patent				19

### English Abstract:

A computer-based system (6) for the assessment, management and instruction of students and for creating learning environments comprising work pages and other instructional **materials**, such as electronic student workbooks. In a preferred embodiment, the system is designed for use with a teacher and a number of students. The teacher...

## Detailed Description:

...assessed, it would be advantageous to automatically develop individualized student workbooks suited for each particular student, and then automate the assembly and delivery of instructional **material** required by the individual student.

Currently, when a student enrolls in **tutorial** or supplemental educational programs, he or she completes a series of primarily paper-and-pencil diagnostic tests to identify subject-specific skill gaps. Once these tests... ..prescription, and instruction of students, and to maintain appropriate records of the process. It is yet another object of the present invention to create a **web based learning** environment, whereby wired and wireless devices can be used to for student-teacher interaction over the Internet.

Once a student has completed a test battery... ..the present invention to generate a personalized study plan and prescription, which can then be followed and tracked using an automated delivery system for instructional **materials**. In short, it is also an object of the present invention to generate more useful diagnostic, prescriptive, instructional and marketing information over a network of attached devices, such as the Internet.

It is yet another object of the present invention to develop a new automated system to administer **web-based learning** activities using a client-server computing model. Lastly, still further objects of the present invention are to enhance assessment, improve effectiveness, streamline test administration and use of the **web-based learning** activities utilizing the system of the invention, reduce administration and scoring costs, eliminate duplicate data entry between applications, support new educational product development, improve instruction... ..data collection.

## SUMMARY OF THE INVENTION

In accordance with the above objects, the present invention provides a system and method for automated delivery of instructional **material** that provides knowledge to students.

Preferably, the present invention relates to a client-server computing model that is used for creating various learning environments, where... ..over the Internet. The students and teachers utilize wired and wireless devices that act as client workstations for one or more servers, which serve instructional **material** via a learning center website. Under the present invention, the students, student guardians (e.g., parents), teachers and directors can log on to the learning... ..that creates a learning environment, where one or more teachers and students can conduct prescribed learning activities. The learning environment can comprise any instructional **material** or **content**, including learning work spaces in the form of student or teacher work books, shared whiteboards, etc. The instructional **material** or **content** can also include instructional software, practice sheets, electronic text books, work sheets, practice sheets, problem sets, etc. Also presented within a learning environment are reference tools, such as dictionary, encyclopedia, thesaurus, calculator, etc.

Each student workstation supports an interactive channel, such as **audio**, video or any other type interactive input/output channel, for holding a learning session with a teacher sessions.

In accordance with another feature, the present invention automatically creates appropriate instructional **material** commensurate with a student's learning attributes, For example, the system of the invention can create unique original lessons that are based on student knowledge, teacher assigned tasks, computer assigned tasks and computer generated problem sets or instructional **material** as well as uniquely created tests for addressing a particular skill gap or a combination of skill gaps. Under this arrangement, when a teacher is... ..correlated with or can characterize a student for improving any learning capability.

Based on attributes stored in a database, the present invention can transforms instructional **material** for achieving a desired learning objective. For example, based on the ethnic background of a student stored in a student attribute database' the present invention can present instructional **material** for a particular subject, e.g. math, to a language, that is understandable by the student. Using a middleware application layer, the system of the present invention can access other student information databases, e.g., public and private school system databases, to determine student attributes and to transform the instructional **material** commensurate with the instructional needs of the students.

In one exemplary embodiment, the presented subject can be transformed from a set of tailored **material** that is presented in another language. For example, 3<sup>rd</sup> grade math problem sets developed for English speaking students can be transformed to problems in... ..is minimized.

The system of the invention also generates student profile data including skill gaps and an electronic student workbook learning environment containing instructional **material** correlated to a student profile data. The electronic workbook is displayed on a student workstation, where student input any necessary data for conducting the learning... ..based student attributes.

The system of the invention has a central or distributed database system that stores profile data for student, teacher, guardian, etc., instructional **material**, incentive date, etc.

The server, which to the work stations and the database system over the Internet, performs most of the centralized functions of the system, including creating the learning environment, generating and delivery of electronic workbooks and instructional **materials**, as well as performing diagnostic assessment and prescriptive learning activity. The teacher and a display for displaying the learning environment, an input device for inputting teacher input data, which can be **audio**, video, or text data. The learning environment can either be teacher or server generated. If the teacher generates the learning environment, the workstation can include... ..input and student profile data. The student workstation also includes a display for displaying student workbooks, an input

device for inputting student data (e.g., **audio**, video, or text data) in response to instructional **materials** in the student workbook, and means for forwarding input data to the server to update the student profile data.

#### DESCRIPTION OF THE DRAWINGS

Fig. 1 is a schematic representation of a system according to one embodiment of the present invention.

5 Fig. 2(a) is block diagram of a **web-based learning** system according to another embodiment of the present invention.

Fig. 2(b) is a functional block diagram of the system of the present invention.

Fig present invention.

Fig. 7 is a screen display or page from the teacher workbook according to the invention showing an example of instructional **material** to be sent to a student after selection from the instruction section.

Fig. 8 shows a page of the electronic student workbook displaying the instructional **material** of Fig. 7.

Fig 9 shows the Basic Fact section of the electronic teacher workbook according to the preferred embodiment of the invention.

Fig. 10... ..directed to a computer-based system for the assessment, management and instruction of students and for creating learning environments comprising work pages and other instructional **materials**, such as electronic student workbooks. In a preferred embodiment, as shown schematically in Fig. 1, the system is designed for use with a teacher and... ..visual display for providing a visual interface with a user. However, the user devices 12 are also capable of communicating information in any form, including **audio** and video form, or in any other form conceivable by one skilled in the art.

The Web server 10 communicates with wired user devices 12... ..machine can serve as both servers. The WAP server 22 provides user accessible information through a WAP client. The WAP server 22 can also retrieve **content** and information located on other application servers and databases.

As shown in Fig. 2(a), the system of the invention includes one or more databases... ..The Intranet model is typically used internally by companies to allow access to company information.

A Web Site is a computer system that serves informational **content** over the network using the standard protocols of the World Wide Web. Typically, a Web site corresponds to a particular Internet domain name and includes the **content** associated ...with a particular organization. As used herein, the term is generally intended to encompass both

(i) the hardware/software server components that serve the informational **content** over the network, and (ii) the "backend" hardware/software components, including any non-standard or specialized Components, that interact with the server components to perform... layer 38, a database layer 40, an operations layer 42, an operation staff layer 44. The user interface layer 36 is responsible for presentation of **content** to the teachers, students, and parents. The user interface layer 36 also communicates with a system delivery and prescription generation software within the backend layer 38, which performs assessment delivery and prescription generation functions within the learning system of the invention. The backend application layer also manages **content** delivery, scheduling and customer relationship management, incentive credit card processing and billing functions.

The database layer 40 manages information storage information functions related to **content** management, including curriculum, website context, and other knowledge base information. The database layer 40 is also a repository for operational data including the participants schedules... whiteboard and chat functions that are required for engaging the learning environment in accordance with the present invention.

As such Fig. 2(b) shows a **web-based learning** system in accordance with the present invention that include teacher and student workstations 32 and 34 being served by the learning center server 10. The... that can browse the web site of the learning center. Each workstation also has certain functionality attributes that for example relate to workstations processing or **content** display capabilities. For example, while a personal computer can support various display resolutions, a small wireless device has a much smaller display capability. Each teacher... 28645 - 12 as, for example Pentium based personal computer systems, to allow third party commercial educational software to be easily integrated over the network. Of **course**, the invention is not limited to any one kind of processor type, and other computer systems and processors may be employed. In another embodiment, the... invention, a workstation (student or teacher) can be equipped with a keyboard, mouse, a pen tablet, a visual input device (e.g., a camera) and **audio** input device (e.g., a microphone) for carrying out **audio/visual** and text communication between a teacher connected to each other via interactive channels over the Internet.

As stated above, the collaboration layer 36 is... collaboration services offered by the present invention. The system of the present invention utilizes wellknown voice or video over Internet Protocols (IP) standards to maintain **audio** and video interactive channels. Each interactive channel is used for holding an interactive session between a teacher and student. The interactive session created under a...and independent learning sessions with three separate student workstation concurrently. In other words, each student workstation 32 maintains one interactive channel for exchange of learning **material** with a teacher, while the teacher workstation 34 can maintain three separate and independent learning sessions with three student workstations concurrently.

As will be explained in detail below, the backend application layer 38 provides for the delivery of student instructional **material** and workbooks in accordance with a

previously, preferably automatically, assessed student profile of each student. The backend application layer 38 is also responsible for assessment and diagnosis to generate a student profile. The profile is then used by the system to generate electronic student workbooks or instructional **material** personalized for each student. In the automated assessment and diagnostic testing, a student receives instructions directly from a computer through the interactive channel. In one embodiment, the workstations 32 and 34 are pen-based equipped with an **audio** headset, camera, mouse and a keyboard for communicating text, visual and **audio** information with each other.

In this way, for example, the student takes the delivered assessment tests and provide answers electronically using the above mentioned input... ..additions to the teacher workbook will assist when the teacher workbook is used to generate student WO 02/31799 PCT/USOI/28645 - 15 term instructional **material** also refers to any data or software useful in instruction, and includes, for example, textbook pages, work sheets, instructional software, simulations and tests of... ..workstations 34 and student workstations 32. The sample screens of the Figures illustrate various features of the invention including the interactive technique for delivering instructional **materials** to the students over the Internet.

16.

In the preferred embodiment, the student and teacher workbooks create a learning environment. What the user sees is... ..may be appropriate to have a classroom user environment or schoolhouse user environment or any other kind of learning environment, including those that contain multimedia **content**, such as **audio**, video, animation, text, etc. It may even be appropriate to tailor the user environment to the grade level or subject taught. In short, as used herein, learning environment refers broadly to the combination of software, graphical interface and data contained displayed thereby, including but not limited to an **audio** or visual interface that can be used by the teacher or students for interaction or any learning activity that can take place between the teachers... ..pen tablet of the student workstation 32 during manual exercises in the student workbook. The teacher WO 02/31799 PCT/USOI/28645 - 16 assembled instructional **materials** in the lower half of the screen relating to a particular skill gap identified in the student profile of a particular student.

The Figs. 9... ..pages associated with this exercise is explained in detail below in the Example.

In general, the teacher may select an exercise from among the instructional **materials** assembled in accordance with the student profile and do exercises or review the **materials** along with the student, referred to as guided practice (GP). After the guided practice, the teacher may assign other **materials** for independent practice (IP) by calling up an exercise in the teacher workbook and then forwarding the exercise or **material** to the student workbook where it appears on the student's screen for the student to do unassisted.

According to one of the embodiment of... ..be held separately from the IP sessions, is a 1 5 synchronous session in which the teacher and the student work and collaborate on instructional **material** on a shared basis. On the other hand, each student work on the IP sessions can be held asynchronously in that predefined or canned **material** on a separate and independent basis. The IP sessions do not necessarily require teacher interaction. Therefore, the system of the invention allows for a combination... ..mathematical concept using word problems. Thereafter, a so-called distributed practice (DP) or mastery test is administered to determine whether the student has mastered the **material** or a particular skill. The DP is preferably administered during a later session in order to test whether the **material** has been retained. The results from the DP or mastery test are then stored in the database and used to update or amend the student... ..workbook, as discussed above, and as will be better understood later, is the combination of a software module and database for displaying and accessing instructional **materials** in accordance with the student profile and teacher commands and storing response and other input data from the student. Likewise, the teacher workbook is a combination of software module and database containing and displaying an assembly of instructional **materials** generated in accordance with the student 1 0 profile. In the preferred embodiment, the teacher uses the teacher workbook to instruct the student and assemble... ..a director of education (DE) or automatically by the server 10 in accordance with the student profile. The student workbook is used to deliver instructional **materials** to the student and retrieve input data and forwards the data to the teacher workbook or central 1 5 processor.

Moreover, as explained above, the present invention automatically creates appropriate instructional **material** commensurate with student learning level and attributes. For example, the system of the invention can create unique original lessons based on student knowledge, teacher assigned tasks, computer assigned tasks and computer generated problem sets or **material** as well as uniquely created tests for addressing a particular skill gap or a combination of skill gaps.

In accordance with the invention, the workbook format or metaphor allows the teacher to look at the **materials** assigned to the student and the progress the student has made.

The **materials** assigned in the student workbook are delivered in accordance with the student profile, as discussed above, either (1) as assigned by the DE, (2) as... ..to evaluate the system effectiveness for a large number of students. Statistical information and analysis may be kept, which is useful in evaluating specific instructional **materials** assembled in the basis between the teacher and the student.

The pen-based computer tablet interface arrangement of workstations 32, 34 allows for free style...the students over the interactive channels 1

During an instructional session, the teacher can call the teacher workbook for each student and with it instructional **materials** for various practice exercises over the entire range from GP to DP. For example, as shown in Figs. 7 and 8, the teacher may call... ..either the scannable sheet or computer tests WO 02/31799 PCT/USOI/28645 - 21 periods and with more enthusiasm than they might otherwise using conventional **materials**, thereby increasing length of stay, or time that students are enrolled in learning

centers using the system of the invention.

Exempl

This example illustrates the... ..and test nonn comparisons are made. Lastly, student profiles are created from the test results.

Prescriptions, that is, assemblies or list of instructional or other **materials** are made in accordance with the student profile. The system updates and amends student profiles, using for example pre- and post test comparisons.

At the stage of automatic instruction, software tracks student progress in the mastery of certain skills and **material**. In other words, the system determines whether the "skill gaps" recorded in the student profile have been filled. The system also provides for the storage, retrieval and delivery of instructional **materials**, and input in response to the instructional **material**. In accordance with the input with respect to the instructional **material**, the system **updates** or amends the student profile and thus allows the assembly of new sets of instructional **material** and further automated instruction.

The automated delivery of instructional **materials** is conducted as follows. The teacher refers to a teacher workbook generated in accordance with the student profile and identifies a skill to cover. The teacher workbook displayed on the teacher workstation 34 shows instructional **materials** correlated for the identified skill area in accordance with the student profile. The teacher selects an instructional item, and, at the teacher's command, the item is sent to the student workbook and displayed on the student workstation 32. The student uses stylus, light pen, mouse, touch-screen, **audio**, or keyboard to solve problems, and input answers in a fashion appropriate to the configuration of the system. In the embodiment of this example, the... ..student management/tracking system of the teacher workbooks records the student's performance. In this way, the system can track student progress based on instructional **materials**, skill gaps, teacher, time spent on different skills, etc. By periodically updating the student profile, a new prescription for the student is produced and the... ..system according to the present invention preferably comprises the following software modules.

Document Manager Module

The Document Manager is used to insert teaching or instructional **material** into the database. Documents added can have question input areas assigned.

The Document Manager preferably has the following features.

(1) Scans in images from a **audio** and video, in-compressed and non-compressed formats.

1 5

DE/Administrator Module

The DE/Administrator module allows the DE of the center to administer... ..by the teachers.

(3) Assign teaching steps for the teachers. If desired, the DE can review all information about a student and assign the instructional **materials** for GP, 1P, PS and DP's to be used with the student. Yet it may be preferable in some instances to have teachers assign... format. This includes communication log's, test results, special notes, etc.

#### Teacher Module

The teacher uses the Teacher Module to administer and deliver the educational **materials**. This module generates the teacher workbook screens, as illustrated in Figs. 3 The Teacher Module preferably has the following features.

The teacher would log in... or more the student's names and ID brings up the electronic teacher workbook for the students which contains the student records, prescription of instructional **materials**, and other data.

After log in, the teacher sees a communication log screen, as shown in Fig. 4. The top portion of the screen, approximately... DP, and Review) are listed in the order in which they should be taught. A second grid below the main skill grid displays the instructional **materials** assembled by the system for the selected skill/step. Fig. 6 shows that a skill designated 2OS2 have been selected for general practice (GP).

The 'View' button at the bottom of the screen in Fig. 6 allows the teacher to **view** the selected **material before** sending it to the student's workstation and notebook. **After** pressing "**View**", a screen such as that shown in Fig. 7 appears. In the screen of Fig. 7, the teacher has the option of sending the **materials** to the student workbook by pressing "Send to Student", getting answers from the student by pressing "Get Answers", collecting input from answered questions by pressing... Fig. 6 retrieves a description of a particular skill for the teacher. The "Score" button enters a score and error analysis for the particular instructional **material** and the "Mastered" button.

From the screen of the teacher workbook shown in Fig. 6, the teacher can send questions to the student, and thereafter... left hand page in Fig. 9 moves the Student Module The Student Module generates the student workbook and allows the student to receive the educational **material** sent by the teacher and enter answers via the student workstation. In the preferred embodiment, the workstation is a pen-based computer.

The student module... software to be ran without a keyboard or mouse. The software therefore needs support for a pen-based interface only. The student module requires, of **course**, the display of information including the student workbook as required by the teacher module. The student module software allows handwriting to be captured from the...

#### Claims:

...plurality of teacher and student stations for holding separate learning sessions between a teacher and a plurality of students; and a server that serves instructional **material** for creating a learning environment during each learning session via a corresponding interactive channel, wherein a teacher can separately interact with each student via a... ..environment comprises a learning space that is interactively shared between the teacher and each student.

3 The learning system of claim 1, wherein the instructional **material** is served via a learning center website that is accessible by the plurality of teacher and student stations.

4 The learning system of claim 3... ..device is used for real time delivery of a student prescriptive plan information.

15 The learning system of claim 1, wherein at least one of **audio**, video and text **content** is communicated over an interactive channel.

16 The learning system of claim 1, wherein a voice synthesis method is used to 5 convert a teacher... ..and student stations for holding one or more learning sessions between a teacher and one or more students; I 0 a server that serves instructional **material** for creating a learning environment during a learning session; and a database that stores at least one of teacher and student attributes that relate to improving a learning ability, wherein the instructional **material** is a computer generated instructional **material** that is produced based on at least one of a retrieved student attribute and a retrieved teacher attribute.

25 The learning system of claim 1, wherein the computer generated instructional **material** comprises at least one of an instructional software, an electronic text book, a work sheet, a practice sheet, and a problem set.

26 The learning system of claim 1, wherein the computer generated instructional **material** comprises a test for assessing at least one of a skill gap and a combination of skill gaps.

27 The learning system of claim 1, wherein the computer generated instructional **material** comprises a lesson prescribed for addressing at least one of a skill gap and a combination of skill gaps.

28 The learning system of claim 1, wherein the computer generated instructional **material** is automatically created when a teacher and a student engage in a - 32 guided practice session, while at least one other student is involved in an independent learning session.

29 The learning system of claim 1, wherein the computer-generated instructional **material** is generated using a computer adaptive assignment process.

30 The learning system of claim 1, wherein the database comprises at least one of a central...and student stations for holding one or more learning sessions between a teacher and one or more students; and a server that serve an

instructional **material** for creating a learning environment during each learning session; a data base that stores one or more teacher attributes, wherein a teacher utilization load is...  
...method of claim 1, wherein during at least one of the synchronous and asynchronous sessions at least one of predefined, pre-designed, or canned instructional **material** is presented to the students or groups of students on a separate and independent basis.

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7/K/53 (Item 15 from file: 349)  
DIALOG(R)File 349: PCT FULLTEXT  
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## INTEGRATED ON-LINE COURSE REGISTRATION SCHEDULING PARTICIPANT TRANSCRIPT AND ADMINISTRATIVE MONITORING SYSTEM

	Country	Number	Kind	Date
Patent				19

### English Abstract:

An online **course** registration and monitoring system for a company training program enables an employee participant to register for **courses** through a server that accesses a database of available **courses** and participant transcripts. A listing of available **courses** is presented (106) to the participant over the network to enable the participant to register (114) for one or more of the available **courses** and to have an online transcript **updated** (120) on completion of the **course**. An administrative level employee may access the online transcript to monitor progress of the participant. The system provides a waiting list for each **course**, alerts regarding availability of **courses**, and alerts regarding changes to **courses**. The system also automatically **updates** an electronic calendar (116) maintained by the participant and verifies the participant's availability to attend the **course** from information stored on the electronic calendar prior to enabling the participant to register for the **course**. The system reviews the transcript of the participant to verify completion of any prerequisites (110) for the **course** prior to enabling registration.

### Detailed Description:

## INTEGRATED ONLINE **COURSE** REGISTRATION SCHEDULING PARTICIPANT TRANSCRIPT AND ADMINISTRATIVE MONITORING SYSTEM

### Field of the Invention

The invention relates to an on-line **course** registration system for an employee participant within a company training program whereby an electronic calendar for participant is

automatically updated when the participant registers for a **course** offered by the system and an on-line transcript is maintained to verify that any prerequisites for the **course** have been satisfied by the participant prior to enrollment in the **course**. The invention also enables instructors and supervisors to monitor the progress of employees through the company training program.

#### Background of the Invention

Many companies today... numerous facilities at which its employees work and desire to receive training. Accordingly, it is often necessary for the training program to offer a same **course** at many different facilities to enable the employees at each different facility to obtain and receive training on a particular topic covered in the same **course**. Managing such a complicated company training program has been a challenge for many years. Although some systems and processes exist to enable companies to manage... programs, such existing systems and processes suffer from many drawbacks.

For example, some corporations maintain a web site-based system that provides a listing of **courses** offered by the corporation to its employees. Employees may visit the web site and register on-line to participate in a **course** offered by the corporation in a company training program. This web site-based system suffers from many drawbacks.

For example, if a **course** has to be changed, the entire web site or pages on which that **course** is listed within the web site often must be changed to accommodate the change in the **course**. This can be time consuming as **courses** change frequently in many instances.

Furthermore, many **courses** have one or more prerequisites. For example, if a training **course** is being offered on Microsoft Word™ advanced topics, a first level or a beginners Microsoft Word™ **course** may be considered a prerequisite to enrollment in the Microsoft Summary of the Invention. It is therefore an object of the present invention to overcome these and other drawbacks of prior systems.

An additional object to the present invention is to provide an on-line **course** registration system and process that leverages a database containing data relating to a plurality of **courses** and a plurality of employee participants to enable an administrator and the employee participants to maximize the benefits of the on-line **course** registration system. The online **course** registration process of the present invention includes the steps of providing an automatic update to an electronic calendar for each of the participants, monitoring a transcript maintained by the database for each of the participants to verify that one or more prerequisites have been achieved prior to enrollment in a **course** requested by the participant, maintaining a waiting list for each of the **courses**, and enabling a first participant to cancel a requested **course** and to thereby automatically notify another participant on the waiting list for the **course** when he/she has been removed from the waiting list and enrolled in the **course** cancelled by the first participant and other features.

Another object of the present invention is to provide an on-line **course** registration system- whereby an administrator may monitor the progress of a plurality of participants

through an on-line transcript maintained for each of the participants.

Another object of the present invention is to provide an on-line **course** registration system for a plurality of employee participants of a company that enables each of the participants to choose a location and one or more **courses** and to check an electronic calendar to verify that he/she is available at a time selected%for the chosen one or more **courses** so that a cancellation of a chosen **course** is less likely.

Another object of the present invention is to provide an on-line **course** registration system whereby a participant and an administrator alike can monitor progress of the participant as the participant achieves a plurality of goals through using a listing of **course** goals to be achieved in a period of time by the participant.

Additional objects and advantages of the invention will be set forth in part... ..server system accessible over one or more networks by a plurality of participants to enable each of the participants to register for one or more **courses** in a company training program, the server system connected to a database that stores **course** data and participant data, the participant data including a participant profile and a participant transcript. The server system comprises a **course** presentation module that presents a graphical user interface to a participant to enable the participant to view a listing of available **courses** offered in the company training program by a location, the **course** presentation module accessing the **course** data in the database to generate contents of a graphical user interface page upon selection of a location by the participant; a **course** registration module that presents a second graphical user interface to the participant that enables the participant to select and register for a **course** for which the participant desires to be registered from the listing of available **courses** in the **course** presentation module; a participant transcript module that updates the participant transcript for the participant upon completion of the registered **course** by the participant; and an administration access module that enables a plurality of administration level employees to monitor the participant transcripts.

In another aspect, the invention comprises a process of enabling a plurality of participants to register for one or more **courses** in a company training program by connecting to a server system over a network and wherein the server system maintains a database that stores **course** data and participant data, the participant data including a participant profile and a participant transcript. The process comprises the steps of presenting a graphical user interface to a participant to enable the participant to view a listing of available **courses** offered in the company training program by a location, the contents of the graphical user interface being generated by accessing the **course** data in the database upon selection of the location by the participant; presenting a second graphical user interface to the participant that enables the participant to select a **course** for which the participant desires to be registered; updating the participant transcript for the participant upon completion by the participant of the registered **course**; and enabling a plurality of administrative level employees to monitor the participant transcripts.

According to another embodiment of the present invention, an online **course** registration and monitoring system accessible over a network is provided for a company training

program that enables a plurality of employee participants to register for **courses** through a server that accesses a database of available **courses** and participant transcripts.

A listing of available **courses** is presented to the participants over the network to enable each of the participants to register for one or more of the **courses** and to have an online transcript **updated** upon completion of the registered **course**. A plurality of administrative level employees may access the online transcripts to monitor progress of the participants.

The online **course** registration and monitoring system provides for a plurality of each of wait lists, alerts regarding availability, and alerts regarding changes to **courses**. Upon registration of a participant for one of the **courses**, the system also automatically **updates** an electronic calendar maintained by the -participant and verifies the participant's availability to attend the registered **course** from information stored on the electronic calendar prior to enabling the participant to register for the **course**. The system reviews an online transcript for the participant to verify completion of one or more prerequisites required by the registered **course** prior to enabling the participant to register for the **course**.

The accompanying drawings, which are incorporated in and constitute a part of this specification, illustrate several embodiments of the invention and, together with the description, serve to explain the principles of the invention.

#### Brief Description of the DraMiM

Figure I depicts a process of participant registration in an on-line **course** registration and management system according to one embodiment of the present invention.

Figure 2 depicts a schematic block diagram of an on-line registration system for a company training **course** for use by employee participants according to an embodiment of the present invention. i

Figure 3 depicts a **course** server system according to an embodiment of the present invention.

Figure 4 depicts a process whereby a plurality of participants that have registered for a **course** are notified of one or more changes in the registered **course** according to an embodiment of the present invention.

Figure 5 depicts an introductory graphical user interface seen by an administration level employee according to an embodiment of the present invention.

Figure 6A depicts an introductory **course** site selection screen according to an embodiment of the present invention.

Figure 6B depicts a **course** selection screen based on a selection of a particular site according to an embodiment of the present invention.

Figure 7 depicts a **course** description screen according to an embodiment of the present invention.

Figure 8A depicts an introductory registration screen prompted upon selection of a **course** according to an embodiment of the present invention.

Figure 8B depicts a profile verification screen according to an embodiment of the present invention.

Figure 9 depicts a **course** selection verification screen according to an embodiment of the present invention.

Figure 10 depicts a registration confirmation screen according to an embodiment of the present... ..a participant can update or create a profile according to an embodiment of the present invention.

Figure 14 depicts an administration screen showing a master **course** listing with a menu of functions enabling an administrative level employee to change, modify, create and delete a **course** in the master **course** listing according to an embodiment of the present invention.

Figure 15 depicts an administrator screen enabling an administrative level employee to edit a **course** according to an embodiment of the present invention.

Figure 16 depicts a master **course** schedule listing screen enabling a participant to choose to view a **course** based upon when the **course** is to occur and by a location according to an embodiment of the present invention.

Figure 17 depicts a **course** roster screen for a particular **course**, whereby an administrative level employee may modify the **course** roster based on new prerequisites, information provided by participants about cancellations, additions or deletions, and other information according to an embodiment of the present invention... ..provides a system whereby a plurality of participants, such as a plurality of employees of a corporation, may register on-line for one or more **courses** offered through a training program at the corporation's training facilities. This is a particularly useful system in ...program. By providing a common system, a plurality of employee participants from the many divisions of the corporation may obtain the benefits of attending the **courses** offered at the different divisions or locations rather than relying exclusively on **courses** offered internally within an employee participant's particular division of the corporation.

The system also makes it easier for a plurality of administrative level employees (i.e., administrators) to create, edit and modify the **courses** by using a database system in which a graphical user interface for a listing of available **courses** offered to the participants is based on contents of a database within the database system, rather than upon a hard-coded HTML page. Accordingly, when it is desired to change a **course**

included in the listing of available **courses**, the contents of the database are changed, rather than a HTML page. Furthermore, the present invention provides an advantage of automatically updating a participant's electronic calendar when the participant registers for a **course**, thereby creating a reminder for the registered **course** and also verifying that a time and a place for the registered **course** is available. The system also checks one or more prerequisites. stored by a creator of a **course** to verify that the participant has achieved all of the prerequisites for the registered **course**. In such a manner, a number of slots on a roster for the **course** are filled only by acceptable participants who have satisfied the prerequisites for the **course** thereby efficiently filling the slots on the roster for the **course**.

Fig. 1 depicts a process whereby a participant signs up for a **course** according to an embodiment of the present invention, such as a **course** in a system depicted in Figs. 2 and 3. Specifically, a process 100 is depicted in Fig. 1 in which a user/participant logs in to a server over a network in step 102. For example, as depicted in Fig. 2, the participant may log in to a **course** server system 16 from a participant system 12 connected over a network 14. According to one embodiment of the present invention, the participant system 12... ..enabled personal computer connected over an intranet or the Internet (e.g., a secure HTTP connection over the Internet to a company server) to the **course** server system 16, which can be comprised of a web server connected to a back end data processing server. It should be appreciated that the... ..network connection or combination thereof that enables a participant to log in to a server and access data.

Once the participant has logged into the **course** server system 16 in step 102 of process 100, the participant selects a site location at which the participant desires to attend a training **course** in step 104. In order to log into the **course** server system 16 in

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step 102, the **course** server system 16 may require that the participant- be registered and that a profile be created for that participant. Specifically, logging in may require that a combination of a participant name, and a password be specified by the participant **prior** to granting **access** to the contents of the data on the **course** server system 16. This restricts access and verifies that the participant has created a profile and a transcript, which can later be used for monitoring the participant's selection of **courses** throughout the **course** server system 16. If the participant has not previously registered with the **course** server system 16, the participant is taken through a registration process as described in more detail below. If the participant has already registered with the **course** server system 16, then the participant is prompted for the participant's name and password to thereby gain access to the **course** server system 16 and continue **course** selection and registration.

Specifically, once access to the **course** server system 16 is granted, the participant may continue **course** selection and registration through a graphical user interface presented by the **course** server system 16 to the participant. The graphical user interface presented may enable the participant to choose a site location at which to take a **course**.

Once the participant has selected the site location at which the participant would like to

take a **course**, a listing of one or more **courses** available at the selected site location are presented in step 106. In one embodiment, a listing of all **courses** available at the selected site location may be presented to the participant, although it may also be possible to present a listing of only those **courses** available to the participant based on an assessment of the participant's profile. For example, a plurality of **courses** only available to certain types of managerial level employees of the corporation may be presented only to a managerial level employee participant based on the participant profile designating the participant as a managerial level employee. Also, a transcript for the participant may be **accessed** to verify that the participant is able to take a **course before** presenting the **course**.

Additional details of this system are provided below.

Next, in step 108, the participant selects a **course** from the listing of available **courses** and then the **course** server system 16 checks for one or more prerequisites for the selected **course** in step 110. If the one or more **course** prerequisites have been satisfied by the participant based on the participant's transcript, then the **course** availability is checked in step 112. Specifically, for each **course**, a roster is maintained indicating a number of participants who may take the **course** based on a location where the **course** will be conducted and any other limits placed on the **course**. If a participant slot is available for the selected **course** based on the roster information in the **course** database 20, then, in step 114, the selected **course** is added to the participant's transcript as a registered **course** and the **course** database is **updated** to indicate that another participant has been added to the roster for the **course** and to add the participant's identity to the roster for the registered **course**. Next, in step 116, the registered **course** is added to an electronic calendar for the participant such that a date, a location, and one or more class times for the registered **course** are specified in the participant's electronic calendar for later use. Next, in step 118, the registered **course** is taken by the participant, and the participant's transcript is updated in step 120 upon completion of the registered **course** so that the participant may apply for a later **course** requiring the completed registered **course** as a prerequisite.

As mentioned above, Figure 2 depicts an embodiment of a **course** registration system 10 according to the present invention comprising the plurality of participant systems 12 connected over the network 14 to the **course** server system 16. Also, a plurality of administrator systems 24 are connected over the network 14 to the **course** server system 16. It should be appreciated that a plurality of administrators (or administrative level employees of the corporation) and a plurality of employee participants may connect to the **course** server system 16 over a plurality of different networks such that network 14 need not be limited to a single network, but may be comprised of a variety of different networks 14 all connected to the **course** server system 16. For example, a participant system 12 may connect over an HTTP Internet connection to the **course** server system 16 whereas an administrator system 24 may connect to the **course** server system 16 via a LAN. The **course** server system 16 is connected to one or more **course** database systems 18. The one or more **course** database systems 18 may each comprise a **course** database 20 and a participant database 22. Alternatively, one database system 18 may comprise the

**course** database 20 and another database system 18 may comprise the participant database 22.

The **course** server system 16 may comprise a plurality of modules to be able to carry out the necessary functionality for the **course** registration system 10. As described in more detail below, and as illustrated in Fig. 3, the **course** server system 16 may comprise one or more of the following modules: a participant registration module 50, a participant log-in module 52, a **course** presentation module 54, a **course** - 10 creation/modification module 56, a **course** registration module 58, an alert module 60, a participant calendar update module 62, a transcript module 64, a **course** search module 66, a wait-list module 68, and an administration menu module 70.

The participant registration module 50 may perform the functions ordinarily associated... ..the passwords associated with one of the participant names) and may also issue a participant name and a password when a new participant accesses the **course** server system 16 to participate in one or more **courses**. Additionally, the participant registration module 50 may be responsible for obtaining information from each participant upon initial registration and/or may allow each participant to modify the initial registration information that is maintained by the **course** server system 16. Specifically, as described above, and in more detail below, a graphical user interface may be presented by the participant registration module 50 upon a request for information by a participant who desires to participate in a **course** offered through the **course** server system 16.

Fig. 13 depicts an embodiment of a graphical user interface 952 output by the participant registration module 50 to enable a participant... ..may comprise a submit button 954 and a cancel button 956 to enable the participant to navigate to one or more other screens within the **course** server system 16 web site. Additionally, a plurality of other input fields may be provided, including the following: a log-in I.D. input field... ..computer identity portion 992. These input fields may be used to create a profile and a transcript for each participant desiring to participate in a **course** offered through this **course** server system 16. The administration level field 974 may be a company internal level field established for an access authorization level to determine whether an...52 (shown in Fig. 3) may be provided to perform a plurality of login functions when the participant connects over the network 14 to the **course** server system 16. In one embodiment, an introductory graphical user interface may be presented by the **course** server system 16 to every participant that accesses the **course** server system 16 through the network 14. An embodiment of an initial screen for the graphical user interface is depicted in Fig. 5.

As shown in Fig. 5, a graphical user interface 300 is presented to the participant upon accessing the **course** server system 16 where the participant may register for a plurality of **courses** and obtain other information provided about the **courses** available through the system 10. The graphical user interface 300 may comprise two major portions: a public portion 302 and an administrator level portion 304. According to one embodiment of the present invention, the public portion 302 is visible by every participant that accesses this information via the **course** server system 16. The administrator level portion 304, however, may be accessible only by an administrative level employee as determined

based upon any one of... ..as in Figs. 14 through 17. Specifically, the administrator level portion 304 may comprise a plurality of selectable portions that initiate various functions by the **course** server system 16 and that are accessible by administrative level employees. These selectable portions may include the following: a new **course** button 306, an edit **course** button 308, an add site button 310, an edit site button 312, an add contact button 314, an edit contact button 316, an add location... ..330, a survey button 332, a clean database button 334, and a log-out button 336.

According to one embodiment of the present invention, a **course** should be understood to be a set subject matter to provide a plurality of participants training on a topic. A class is a particular instance of a **course** that is scheduled to occur at a particular place and time. A site is a facility of the corporation (e.g., Richmond, Norfolk, Atlanta, New York). A location may be a particular room or meeting place within that particular site. A contact may comprise a person responsible for the **course** including an instructor or an administrator. Accordingly, the various buttons 306 through 322 enable the adding or editing of existing **courses**, classes, sites, contacts, and locations. Public portion 302 comprises an introductory graphical user interface to enable each of the participants to navigate throughout the web site to access information about the **courses** being offered, retrieve his/her transcript, and to register for one or more **courses** online. As shown in the public portion 302, a plurality of links may be provided along a top of a screen such as "take me... ..that he/she may desire. The rest of the public portion 302 may comprise a plurality of main navigational points to access the on-line **course** registration system 10.

A "what's new" link 350 may be provided that, upon selection, presents a screen that determines a plurality of new **courses** that will be offered, any changes to existing **courses**, and other new information. An "about company university" portion 352 may also be provided that enables a new participant to understand the goals and purposes of the corporation's training **courses**. **Course** information module 354 may also be provided as part of the graphical user interface 300 to enable the participant to proceed to one or more register for **courses** on-line. Additional details regarding this are described below.

Also, a company facilitation network portion 356 may be provided that enables the participant to log in to the **course** server system 16 as an administrative level employee if the cookie or other security procedures have not been effectuated. Additional details of the administrator level portion 304 are provided below with respect to Figs. 14. Accordingly, when the participant accesses the on-line registration system 10 and selects **course** information button 354, the **course** presentation module 54 is activated.

The **course** presentation module 54 provides the functionality that accesses the **course** server system 16 databases 20 and 22 to present a listing of available **courses** for the participant. According to one embodiment, as described above, a graphical user interface 450, shown in Fig. 6A, may be initially presented and may provide basic information about how to utilize the **course** server system 16 and may present a variety of site locations from which the participant may desire to see a listing of available **courses**. One embodiment of such a graphical user interface 450 is depicted in Fig. 6A. As shown in Fig. 6A, a plurality of available site locations offering training **courses** are provided in

section 452. Section 452 comprises a plurality of selectable links 454 that enables the participant to select the site location at which to access the listing of available **courses**.

Some participants may desire to see the listing of available **courses** for all of the corporation's site locations and, therefore, an all locations link 455 may also be provided.

Furthermore, according to another embodiment of the present invention, a plurality of **online** computer-based **training courses** may be provided by the corporation and, therefore, a listing of available computer-based training **courses** may be provided upon selection of computer-based training link 456.

The graphical user interface 450 may also comprise a plurality of different buttons that...to quickly cancel a class for which the participant has registered. Additional links may also be provided to enable navigation throughout the site for the **course** server system 16, including an add to favorites link 464 that enables the participant to add this graphical user interface page 450 to a listing of favorites of a browser, a home link 466 which takes the participant back to the initial home page presented upon accessing the **course** server system 16, a links page 468 which displays a plurality of links that might be of use to the participant, and a feedback link 470 that enables the participant to input information to have electronically transmitted to an administrator of the web site for the **course** server system 16.

Upon selection of one of the **course** locations from the selectable links 454, or the all locations link 455, a **course** schedule graphical user interface 400 (shown in Fig. 6B) may be presented to the participant by the **course** presentation module 54. The graphical user interface 400 comprises a location information portion 402, a **course** schedule title 404, and a plurality of **course** entry rows 406 indicating a **course**, a duration, a plurality of dates, a plurality of times and registration information for each **course** listed in the **course** entry rows 406. Each of the **course** entry rows 406 may also comprise a selectable link portion 408 where, upon selection, information about the indicated **course** is provided to give the participant more information about a plurality of topics the indicated **course** covers, a plurality of requirements for the **course**, and other similar information. For example, an embodiment of a graphical user interface 500 providing more information about a "Microsoft networking essentials" **course** offered is depicted in Fig. 7. This graphical user interface screen 500 provides information about a plurality of objectives of the Microsoft **course**, a plurality of prerequisites, a target audience for the **course** and any costs associated with enrolling in the **course**. A close window button 502 is provided to enable the participant to close a window for the graphical user interface 500 and return to the previous graphical user interface screen. Within each selectable row 406 (of Fig. 6B) - 15 for each **course**, registration information is provided. If a **course** is still available, a click to register on-line button 410 is provided that enables the participant to register for a **course** through the selection of one simple button.

Upon selection of the click to register on-line button 410, the **course** registration module 58 is activated by the **course** server system 16. The **course** registration module 58 may present a plurality of graphical user interfaces to the participant to ensure proper

registration for a **course**. According to one embodiment of the present invention, a graphical user interface 600, such as that depicted in Fig. 8A, may be presented to the participant upon selection of a **course** for which to register. This graphical user interface screen 600 may query the participant to input a log-in ID under which the participant wants his/her **course** to be registered and may provide an input box 602 where information responsive to the query may be input. Additional buttons for functionality may also... ..may be provided to allow the participant to navigate through the registration process. The cancel button 604 may cancel the registration process for this particular **course** and the create new profile button 605 may take the participant to a profile creation system as described above. When the participant inputs the log **course** and a plurality of the details to verify that the participant has input the correct information before completing registration. The graphical user interface 700 also... ..as well as a back button 704 and an enroll button 702. Upon selection of the enroll button 702, enrollment by the participant in the **course** is then effectuated.

At this point, the **course** registration module 58 determines the availability of the selected **course** and any prerequisites for the selected **course** as described above. If the participant has satisfied the prerequisites and the **course** is available, then the participant's profile is updated with the registration and enrollment information for the selected **course**, and the **course** database 20 is **updated** to include the name and identity of this particular participant on the roster for the selected **course**.

It is also possible within the present invention to provide a plurality of profiles for - 16 a single participant. Accordingly, a profile verification screen 650... ..the next button 608, described above with respect to Fig. 8A.

Upon selection of the enroll button 702 (shown in Fig. 9), confirmation by the **course** registration module 58, the determination that the participant has met the prerequisites for the selected **course**, and that the selected **course** is available, after the participant is enrolled in the selected **course**, a confirmation screen 800, such as the screen depicted in Fig. 10, may be presented to the participant. This confirmation screen 800 indicates that the participant has been successfully registered in the selected **course** and that an email confirmation notice may follow. A finish button 802 is provided to enable the participant to complete registration and return to an earlier screen to view additional **courses** in case the participant would like to register for additional **courses** at that time.

According to one embodiment of the present invention, an email confirmation notice may also be transmitted to the participant based on the information provided in the participant's profile. According to this embodiment, the information provided may include information about the registered **course** and may remind the participant to add the registered **course** to the participant's electronic calendar and information concerning where the participant may go to make changes to the registration. An example of such an email notification is provided in Fig. 11.

According to another embodiment of the present invention, the **course** registration information may be automatically **updated** to the participant's electronic calendar.

According to this embodiment, the **course** registration module 58 activates the participant calendar update module 62 (of Fig. 3) and the **course** server system 16. The participant calendar update module 62 may perform the function of adding the registered **course** to the participant's electronic calendar. This function may be accomplished through a variety of different methodologies, all of which may be used according to the present - 17 invention. For example, if the participant's electronic calendar is maintained or cooperating with the **course** server system 16, an entry may be added directly into the profile for the particular participant stored in the participant database 22 (shown in Fig.

2). Accordingly, when the participant pulls up his or her electronic calendar, the registered **course** will have been added to the electronic calendar automatically through a server where the electronic calendar is stored. Additionally, it is known that there are... ..commercially sold currently that can cooperate with email programs to enable the participant to schedule a meeting through the electronic calendar program. Accordingly, the **course** server system 16, through participant calendar update module 62, may actually transmit an email message such as the email message, depicted in Fig. 1 1, that offers the participant an opportunity to accept the registration for the **course** and wherein, if the offer is accepted, automatically adds the **course** to the participant's electronic calendar. When the participant calendar update module 62 creates an email message through the server, the participant calendar update module 62 serves the functions of both sending the email message as well as adds the registered **course** to the participant's electronic calendar. Other similar methodologies for automatically adding the registered **course** to the participant's electronic calendar may also be used.

As described above, the participant may select a **course** without knowing whether or not the selected **course** is available. The **course** server system 16 then checks the availability of the selected **course** and informs the participant whether or not the selected **course** is available. According to one embodiment of the present invention, if the selected **course** is not available, the **course** server system 16 may offer a waiting list for the selected **course**. In such an instance, a wait list module 68 (shown in Fig. 3) may be activated by the **course** registration module 58 to thereby create a waiting list associated with the selected **course**. The waiting list may comprise a priority scheme for determining which one of the participants on the waiting list will be added to the **course** if an opening becomes available. For example, if a participant who is registered for the **course** decides that he/she is not able to attend the **course** and cancels the **course**, an opening in the roster of participants for the **course** is created. At that point, the wait list module 68 may access a database having a listing of the participants on the waiting list for the **course** and determine which one of the participants should be added to the roster - 18 of participants for the **course**. The **course** server system 16 may automatically add the participant to the roster, or may send an email or other message to the participant to offer the participant an opportunity to register for the **course**. For example, in between a time that a participant signs onto a waiting list for a **course**, and a second time that a **course** opening becomes available, the participant may have made and scheduled another appointment during the time the **course** is to take place. Therefore, by requesting information from the participant before removing the participant from the waiting list to be added to the **course**

roster, the **course** server system 16 can save time by finding out the participant is no longer available. At that point, the wait list module 68 may proceed to determine the next available participant to register for the **course**.

In order to perform this functionality, wait list module 68 may cooperate with an alert module 60 provided by the **course** server system 16. The alert module 60 provides the functionality of transmitting one or more notices when a plurality of types of events occur. One... ..types of events for which the participant may desire to receive an alert. The participant may desire to receive an alert concerning when a particular **course** becomes available at a particular location and thereby sets that information in a profile. When the particular **course** is added for a particular time and location specified, an alert message may be sent to the participant to thereby notify the participant to access the site to register or to offer the participant an opportunity to automatically register for the **course** through the email system described above. Also, a participant may be provided an alert message each time a change is made to the **course**, such as a change in the time, a change in the location, a change in the subject matter covered, a change in the number of participants allowed, a change in an instructor, or other information about the **course** that may be pertinent to the participant to determine whether or not to continue the registration.

The details of enabling an administrator to make one or more changes to a **course** are provided below, and such changes may affect whether or not the participant would desire to continue the **course**. For example, the **course** may be determined to be a two hour **course** instead of a three hour **course** and the change may be reflected in the - 19 schedule. When notified, the participant may decide that he/she needs three more hours of training to satisfy a requirement and therefore may desire to select a different **course** that satisfies the three hour requirement instead of a **course** of just two hours. An alert may also be transmitted when other participants register for the **course**. For example, one participant may like to take a **course** with a colleague participant from another site.

Accordingly, the one participant could specify that an alert be transmitted to notify the one participant whenever the colleague participant registers for the **course**. Similarly, a supervisor may desire to be notified when any of the downline employees who the supervisor supervises registers for a **course** to therefore keep a running tab on each of the participants who have registered for each of the **courses**. Other alerts may also be possible through the present invention based on the data collected in the database to provide the most useful information available to various participants of the system.

The **course** server system 16 may also provide the **course** search module 66 (shown in Fig. 3) that enables the participant to search for a **course** based on a plurality of predetermined criteria, including one or more of the following: a location, a date, a time of day, a **course** title description, one or more key words within the **course** title description, an instructor, a number of hours, one or more prerequisites required, or any other information maintained about the **course** within the **course** database 20.

Accordingly, the participant can access the site and search for the **course** based on one or

more of these predetermined criteria rather than scrolling through what could be a very long list of **courses** available at each different site. For example, the participant may be interested to know what **courses** are available relating to Microsoft Word at the Richmond site location of the corporation in the month of May and, therefore, the participant may conduct a search based on the aforesaid criteria. A result page that includes a plurality of **course** listings such as, for example, the **course** listings depicted in the graphical user interface 400 of Fig. 6B may then be presented to enable the participant to select one or more of the **courses** included in the **course** listings and register for the selected **course** as described above. Furthermore, it may be desirable for a plurality of participants of the system 10, a plurality of supervisors of those participants, and... ..for example, that shown in Fig. 12. This graphical user interface 900 may comprise a current enrollment portion 902 that shows a listing of each **course** for which the participant is currently registered. The graphical user interface 900 screen may also comprise a section (not shown) that displays the transcript of the participant and that comprises a listing of all of the **courses** completed by that participant within a predetermined period of time for the participant's entire period of employment by the corporation. Each entry in the current enrollment section 902 may comprise an action menu link 904 that enables the participant to take an action with respect to the **course** in that entry. For example, in the embodiment of Fig. 12, a cancel button 904 may be provided to enable the participant, a supervisor for the participant, or an administrative level employee to cancel that particular participant's registration for the **course** automatically through the selection of the one cancel button 904. Then, a confirmation screen may also be provided to confirm the action taken. A close... ..supervises to monitor the progress of the supervised participants and to verify that each of the supervised participants has actually completed one or more certain **courses** required for his/her job description. Furthermore, it may be desirable for a system administrative level employee to have access to all or at least a large set of the transcripts for the participants to enable the administrative level employee to cancel, modify, or register for one or more **courses** for each of the different participants such as for those of the participants who do not have direct access to the network 14 at a particular time. Thereby, the system administrative level employee may receive a telephone call instructing the administrative level employee that a participant desires to cancel a **course**, and may retrieve the participant's transcript and enrollment information from the participant database 22 and may then cancel the **course** registration for the participant while the participant is on the telephone with the administrative level employee.

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These and other functions may be provided through an administration menu module 70 (shown in Fig. 3), such as that provided in **course** server system 16.

According to one embodiment of the present invention, the administration menu module 70 enables an administrative level employee to access the **course** server system 16 and to monitor and modify contents of the profiles for each of the participants and the **course** description profiles to therefore maintain control over the entire registration process for these **courses**. According to one embodiment of the present invention, the administration menu module 70 may include the administrator level portion 304 within the graphical

user interfaces of a plurality of pages within the site to enable administrative level employees to take certain actions with respect to the contents of **courses** and profiles for participants.

According to one embodiment of the present invention, to create a new **course**, the following data fields may require input by an administrative level employee and stored within the **course** database 20: a **course** title, a curriculum, a category, a classification, a default delivery method, a brief description, a plurality of objectives, an audience, a prerequisite information section, a plurality of prerequisite **courses**, a fee, and a default maximum **course** size. Similarly, to edit a **course** that preexists, a graphical user interface may be provided that presents a plurality of values for each of those fields for a **course** and enables the administrative level employee to change any of those existing values.

According to one embodiment, to edit a **course**, the administrative level employee selects the edit **course** button 308 whereupon a graphical user interface 1000, such as that shown in Fig. 14, is presented to the administrative level employee. The graphical user interface 1000 may present a listing of **courses** to which that administrative level employee is authorized to make one or more edits. A different level of editing may be authorized for a plurality of different **courses**, or in one embodiment, the administrative level employee may be able to edit all of the **courses**.

The graphical user interface 1000, as shown in Fig. 14, may present a master listing of all **courses** currently offered by the corporation and administered by this particular **course** server system 16. Each **course** in the master **course** listing may comprise a name link 1002 (for a **course** 360 entitled "Feedback Workshop" in the example) and a delete button 1004. Upon selection of the name link 1002, the administrative level employee is able to edit information about the **course**. By selecting - 22 the delete button 1004, the administrative level employee is able to delete the **course** from the listing of **courses** offered by the **course** server system 16. Upon selection of the name field 1002, another graphical user interface 1100 may be presented such as, for example, that shown... ..Fig. 15. The graphical user interface 1100 provides an administrator level portion 304 as well as a number of other fields about the **course** selected. A **course** title field 1102 provides a current title of the **course** and enables the administrative level employee to change the title of the **course**, if desired. A curriculum drop down menu 1104 may be provided that indicates whether or not the selected **course** is an independent **course** or one in a series of related **courses**. A category drop down menu 1106 may be provided to enable the administrative level employee to determine a category type for the selected **course**, whether the selected **course** is, for example, a computer-related **course**, a typing **course**, an organizational skills **course**, or concerns other subject matters offered through the company training program. Additionally, a classification drop down menu 1108 may be provided that enables input of whether the selected **course** is one of a personal nature, or ...selection portion 1110 may also be provided that enables the administrative level employee user to select the default delivery method for delivery of the selected **course** to the participants registered to take the selected **course** (e.g., via a lecture, via on-line video/audio transmission, via a book, etc.).

Further, a brief description section 1112 may be provided to enable the administrative level employee to create a brief description that is then used in describing the subject matter of the **course** to participants in the on-line registration system 10. A list of objectives may then be input in a section 1114 that provides an itemized list of a plurality of skills to be learned from the **course**.

An audience portion 1116 may also be provided that indicates a type of participant to whom the **course** is made available (e.g., administrative level employees only, supervisor employees only, all employees, etc.). Prerequisite information for the selected **course** may be input in field 1118. For example, in this field 1118, it may be desirable to indicate that a prerequisite for the selected **course** is that a participant have a working understanding of calculus. Next, one or more prerequisite **courses** are selected from a list of all current **courses** in section 1120. A fee associated with the selected **course** may be input in a section 1122 and the default maximum class size may be selected in 1124. A -23 default maximum class size field 1124 specifies the number of participants that may attend the selected **course** to enable the **course** to continue to provide a meaningful learning experience for each of the participants. Depending upon the location for the **course**, a class size may be smaller for each class of a **course**, but that may be input upon creating a class based on that **course**. Once the listing of **courses** have been created or edited by the administrative level employee, a plurality of classes based on each of the **courses** may be scheduled to be held throughout the various locations and sites of the corporation.

To add a new **course**, a graphical user interface 1200, shown in Fig. 16, may be presented to the administrative level employee and may request the following information: a **course**, a plurality of locations, a date, a duration, a size of the **course**, an instructor and similar other information. Additionally, to edit an existing **course**, the graphical user interface 1200 may be presented to the administrative level employee. A master scheduled **course** listing may be provided to enable the administrative level employee to select which **course** to edit. Alternatively, the administrative level employee may specify a plurality of **courses** in a section 1202. Also the administrative level employee may list the **courses** by specific locations through a location selection portion 1204. In any event, each entry for a **course** indicates the **course** name with the selectable link, the date with the selectable link and various actions that may be taken including listing a roster of participants for the **course** thorough a portion 1208 or to delete the **course** through the delete button 1210. To edit a particular **course**, the administrative level employee selects the linked portion 1206 whereupon information input for that selected **course** is presented and may be changed or modified.

Further, upon selection of the roster portion 1208, a **course** roster graphical user interface 1300, such as, for example, that shown in Fig. 17, may be presented. This **course** roster provides a list of all of the participants who are currently registered for a **course**, a location where each of the participants works, a date on which each of the participants added the **course**, any date of **update**, a current enrollment status for each of the participants and a menu of a plurality of actions that the administrative level employee may take with respect to each participant including a wait section 1314, a cancel section

1316, a completed the **course** section 1318, an incomplete **course** section 1320 or an enroll in section 1322. Additionally, a **course** status portion 1310 may be presented that - 24 indicates the availability for additional participants to enroll in the particular **course**.

Additional functionality may be provided including an ability to add a participant - through selection of a link 1302, edit the **course** through selection of a link 1304, send an email message about the **course** to the participants through selection of a link 1306, or change an order in which the participants are listed through selection of a link 1308. For example, for very large **courses**, it may be desirable to list the participants by a location rather than by a last name of each participant and that may be accomplished... ..a change sort functionality of the link 1308.

Additional functionality may be provided for the administrative level employee including an ability to view a master **course** schedule. Also, the administrative level employee may desire to view a complete listing of all participants who have ever created a profile to take a **course** through the system 10 by selecting the students button 324.

Moreover, it may be desirable for the administrative level employee to return to an adn...provided that cleans out one or more partially completed records from the database system 18. For example, as described above, in order to create a **course**, a two step process is conducted. First, the administrative level employee selects a **course**, an instructor and a location at which the new **course** will be offered. The administrative level employee then selects submit and then is offered an opportunity to select a time and a date for the new **course**. If the administrative level employee fails to do so, any partially completed records that are stored in the database system 18 may then be cleaned... ..button 334 to thereby free up space in the database system 18. Also, a profile for a participant who has not signed on to a **course** or who is no longer employed by the corporation may be flagged so that when the clean DB function is operating, those profiles are deleted... ..A log out button 336 may also be provided to enable the administrative level employee to log out of the administration functions provided by the **course** server system 16.

As described above, it may desirable for each participant to create a profile containing a plurality of **courses** in which the participant may be interested and allow the **course** server system 16 to notify the participant when a **course** becomes available.

According to this embodiment, a process 200 is provided as depicted in Fig. 4. After a participant registers for a **course** and creates a profile in step 202, the created profile includes a list of **courses** for which the participant may have an interest, including a listing of such **courses** by a category, a subject matter, a key word, an instructor, a location, etc. Any time a participant deletes a **course** or makes a change in a **course** in step 204, the **course** server system 16 then compares the **course** deletion or change to a profile for each of the other participants on the **course** server system 16 in step 206. If the deleted or changed **course** is found in a profile for one of the other participants in step 208, then an alert is sent to the one other participant offering the **course** in step 210. If there is no match of a deleted or changed **course** with a profile for any other participant,

then the process 200 back tracks to step 204 and waits for additional **courses** to be added or changed by one or more participants.

Although a detailed description of the preferred embodiments has been provided, the scope of the...

### Claims:

...server system accessible over one or more networks by a plurality of participants to enable each of the participants to register for one or more **courses** in a company training program, the server system connected to a database that stores **course** data and participant data, the participant data including a participant profile and a participant transcript, the server system comprising: a **course** presentation module that presents a graphical user interface to a participant to enable the participant to view a listing of available **courses** offered in the company training program by a location, the **course** presentation module accessing the **course** data in the database to generate contents of a graphical user interface page upon selection of a location by the participant; a **course** registration module that presents a second graphical user interface to the participant that enables the participant to select and register for a **course** for which the participant desires to be registered from the listing of available **courses** in the **course** presentation module; a participant transcript module that updates the participant transcript for the participant upon completion of the registered **course** by the participant; and an administration access module that enables a plurality of administration level employees to monitor the participant transcripts.

2 The system of claim 1 wherein each **course** has a limit on a number of participants for a roster and the **course** registration module determines whether the limit for a desired **course** has been reached prior to registering the participant for the desired **course**.

3 The system of claim 2 wherein the **course** registration module enables the participant to be added to a waiting list for the desired **course** if the limit for the roster for the desired **course** has been reached.

4 The system of claim 3 further comprising a wait list module that maintains the waiting list for each of the **courses** offered in the company training program.

5 The system of claim 4 wherein the wait list module receives information regarding an opening on the roster for the desired **course**, identifies a participant on the waiting list to fill the opening, notifies the identified participant electronically of the opening, and offers the identified participant the opening on the roster for the desired **course**.

6 The system of claim 1 further comprising a calendar **update** module that adds the **course** to a calendar electronically maintained by the participant upon registration for the **course** by the participant.

7 The system of claim 1 wherein the **course** registration module cooperates with a calendar program operated by the participant to verify that a time and a date for the

**course** are available according to a calendar of the participant prior to enabling the participant to register for the desired **course**.

8 The system of claim 7 wherein the desired **course** has one or more prerequisites and wherein the **course** registration module queries the participant transcript module to determine whether the participant has satisfied the one or more prerequisites for the desired **course** prior to enabling the participant to register for the desired **course**.

9 The system of claim 1 further comprising a **course** search module that enables the participant to search for one or more **courses** meeting one or more criteria specified by the participant and to retrieve from the database the one or more **courses** meeting the one or more criteria specified by the participant, and to pass those retrieved **courses** to the **course** presentation module to present in a graphical user interface to the participant.

10 The system of claim 1 further comprising an administration-access module that enables an administrative level employee to administer the company **training program online**.

11 The system of claim 10 wherein the administration access module enables the administrative level employee to view a roster of participants for a scheduled **course**.

12 The system of claim 10 wherein the administration access module enables the administrative level employee to create a **course**.

13 The system of claim 10 wherein the administration access module enables the administrative level employee to edit a **course**.

14 The system of claim 13 further comprising an alert module that notifies one or more participants that have registered for a **course** of a change in the registered **course**.

15 The system of claim 10 wherein the administration access module enables the administrative level employee to add a **course** to the listing of available **courses**. - 28

16 The system of claim 10 wherein the administration access module enables the administrative level employee to view a transcript for each of the...  
...17 The system of claim 10 wherein the administration access module enables the administrative level employee to add a participant to a roster for a **course**.

18 The system of claim 10 wherein the administration access module enables the administrative level employee to update a participant's registration for a **course** to indicate a completion of the registered **course** and wherein the **update** triggers the transcript module to update the participant's transcript.

19 A system for enabling a plurality of participants to register for one or more **courses** in a company training program comprising: a plurality of participant systems connected over one or more networks to a server system wherein the server system is connected to a database that stores **course** data and participant data, the participant data including a participant profile and a participant transcript; the server system including: a **course** presentation module that presents a graphical user interface to a participant to enable the participant to view a listing of available **courses** offered in the company training program by a location, the **course** presentation module accessing the **course** data in the database to generate the contents of a graphical user interface, page upon selection

of the location by the participant; a **course** registration module that presents a second graphical user interface to the participant that enables the participant to select and register for a **course** for which the participant desires to be registered from the listing of available **courses** in the **course** presentation module; a participant transcript module that updates the participant transcript for the participant upon completion by the participant of the registered **course**; and an administration access module that enables a plurality of administrative level employees to monitor the participant transcripts.

20 The system of claim 19 wherein each **course** has a limit on a number of participants for a roster and the **course** registration module determines whether the limit for a desired **course** has been reached prior to registering the participant for the desired **course**.

21 The system of claim 20 wherein the **course** registration module enables the participant to be added to a waiting list for the desired **course** if the limit for the roster for the desired **course** has been reached.

22 The system of claim 21 further comprising a wait list module that maintains the waiting list for each of the **courses** offered in the company training program.

23 The system of claim 22 wherein the wait list module receives information regarding an opening on the roster for the desired **course**, identifies a participant on the waiting list to fill the opening, notifies the identified participant electronically of the opening and offers the identified participant the opening on the roster for the desired **course**.

24 The system of claim 19 further comprising a calendar **update** module that adds the **course** to a calendar electronically maintained by the participant upon registration for the **course** by the participant.

25 The system of claim 19 wherein the **course** registration module cooperates with a calendar program operated by the participant to verify that a time and a date for the **course** are available according to a calendar of the participant prior to enabling the participant to register for the desired **course**.

26 The system of claim 25 wherein the desired **course** has one or more prerequisites and wherein the **course** registration module queries the participant transcript module to determine whether the participant has satisfied the one or more prerequisites for the desired **course** prior to enabling the participant to register for the desired **course**.

27 The system of claim 19 further comprising a **course** search module that enables the participant to search for one or more **courses** meeting one or more criteria specified by the participant and to retrieve from the database the one or more **courses** meeting the one or more criteria specified by the participant, and to pass those retrieved **courses** to the **course** presentation module to present in a graphical user interface to the participant.

28 The system of claim 19 further comprising an administration access module that enables an administrative level employee to administer the company training program **online**.

29 The system of claim 28 wherein the administration access module enables - 30 the administrative level employee to view a roster of participants for a scheduled **course**.

30 The system of claim 28 wherein the administration access module enables the administrative level employee to create a **course**.

31 The system of claim 28 wherein the administration access module enables the administrative level employee to edit a **course**.

32 The system of claim 28 further comprising an alert module that notifies one or more participants that have registered for a **course** of a change in the registered **course**.

33 The system of claim 28 wherein the administration access module enables the administrative level employee to add a **course** to the listing of available **courses**.

34 The system of claim 28 wherein the administration access module enables the administrative level employee to view a transcript for each of the...  
...35 The system of claim 28 wherein the administration access module enables the administrative level employee to add a participant to a roster for a **course**.

36 The system of claim 28 wherein the administration access module enables the administrative level employee to update a participant's registration for a **course** to indicate a completion of the registered **course** and wherein the **update** triggers the transcript module to update the participant's transcript.

37 A process of enabling a plurality of participants to register for one or more **courses** in a company training program by connecting to a server system over a network and wherein the server system maintains a database that stores **course** data and participant data, the participant data including a participant profile and a participant transcript, the process comprising the steps of: presenting a graphical user...  
...listing of available classes offered in the company training program by a location, the contents of the graphical user interface being generated by accessing the **course** data in the database upon selection of the location by the participant; presenting a second graphical user interface to the participant that enables the participant to select a **course** for which the participant desires to be registered; updating the participant transcript for the participant upon completion by the participant of the registered **course**; and enabling a plurality of administrative level employees to monitor the participant - 31 transcripts.

38 The process of claim 37 wherein each **course** has a limit on a number of participants for a roster and wherein the process further comprises the step of determining whether the limit for a desired **course** has been reached prior to registering the participant for the desired **course**.

39 The process of claim 38 further comprising the step of enabling the participant to be added to a waiting list for the desired **course** if the limit for the roster for the desired **course** has been reached.

40 The process of claim 39 further comprising the step of maintaining a waiting list for each of the **courses** offered in the company training program.

41 The process of claim 40 further comprising the steps of: receiving information regarding an opening on the roster for the desired **course**; identifying a participant on the waiting list to fill the opening; notifying the identified participant electronically of the opening; and offering the identified participant the opening on the roster for the desired **course**.

42 The process of claim 37 further comprising the step of adding the

registered **course** to a calendar electronically maintained by the participant upon registration for the desired **course** by the participant.

43 The process of claim 37 further comprising the step of verifying availability of the participant in the participant's electronic calendar prior to enabling the participant to register for the desired **course**.

44 The process of claim 37 wherein the desired **course** has one or more prerequisites and wherein the process further comprises the step of determining whether the participant has satisfied the one or more prerequisites for the desired **course** prior to enabling the participant to register for the desired **course**.

45 The process of claim 37 further comprising the step of enabling an administrative level employee to administer the company **training** program **online**.

46 The process of claim 37 further comprising the step of enabling an administrative level employee to view a roster of participants for a scheduled **course**.

47 The process of claim 37 further comprising the step of enabling an administrative level employee to create a **course**.

48 The process of claim 37 further comprising the step of enabling an administrative level employee to edit a **course**.

49 The process of claim 48 further comprising the step of alerting each of the participants that have registered for a **course** of a change in the registered **course**.

50 The process of claim 37 further comprising the step of enabling an administrative level employee to add a **course**.

51 The process of claim 37 further comprising the step of enabling an administrative level employee to view a transcript for each of the participants... 52 The process of claim 37 further comprising the step of enabling an administrative level employee to add a participant to a roster for a **course**.

53 The process of claim 37 further comprising the step of enabling an administrative level employee to update a participant's registration for a **course** to indicate a completion of the registered **course** and wherein the **update** triggers an update of the participant's transcript.

54 A server system accessible over one or more networks by a plurality of participants to enable the participants to register for one or more **courses** in a company training program, the server system connected to a database that stores **course** data and participant data, the participant data including a participant profile and a participant transcript, the server system comprising: a **course** presentation module that presents a graphical user interface to a participant to enable the participant to view a listing of available **courses** offered in the company training program by a location, the **course** presentation module accessing the **course** data in the database to generate contents of a graphical user interface page upon selection of the location by the participant; a **course** registration module that presents a second graphical user interface to the participant that enables the participant to select and register for a **course** for which the participant desires to be registered from the listing of available **courses** in the **course** presentation module; a participant transcript module that updates the participant transcript for the participant upon completion by the participant of the registered **course**; and a calendar **update** module that adds the **course** to a calendar electronically maintained by the participant upon registration for the **course** by the participant.

55 The system of claim 54 wherein each **course** has a limit on a number of participants for a roster and the **course** registration module determines whether the limit for a desired **course** has been reached prior to registering the participant for the desired **course**.

56 The system of claim 55 wherein the **course** registration module enables the participant to be added to a waiting list for the desired **course** if the limit for the roster for the desired **course** has been reached.

57 The system of claim 56 further comprising a wait list module that maintains the waiting list for each of the **courses** offered in the company training program. to 58. The system of claim 57 wherein the wait list module receives information regarding an opening on the roster for the desired **course**, identifies a participant on the waiting list to fill the opening, notifies the identified participant electronically of the opening and offers the identified participant the opening on the roster for the desired **course**.

59 The system of claim 54 wherein the **course** registration module cooperates with a calendar program operated by the participant to verify that a time and a date for the **course** are available according to a calendar of the participant prior to enabling the participant to register for the desired **course**.

60 The system of claim 54 wherein the desired **course** has one or 'more prerequisites and wherein the **course** registration module queries the participant transcript module to determine whether the participant has satisfied the one or more prerequisites for the desired **course** prior to enabling the participant to register for the desired **course**.

7/K/54 (Item 16 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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Country	Number	Kind	Date
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### Detailed Description:

...and external sources, and the content may comprise new training material, existing training material, and off-the-shelf courseware.

When an SME 16a publishes multimedia **content** on the desktop by the 1 5 authoring enabler 56 in a system having multiple remote publishing servers 60, the published **content** is transferred to the remote publishing server 60 assigned to the local group of SIVIEs 16a. The remote publishing server 60 then produces multiple versions of the original **content** in multiple formats, such as HTML, MP3, Microsoft Word, **audio** only, a transcript, and streaming video, an so on. Once the **content** is in final form, the multiple versions of the **content** are transferred from the remote publishing server 60 to

the master publishing server 58. In an alternative embodiment, the original **content** may first be transferred from the remote publishing servers 60 to the master publishing server 58 where the multiple versions of the original **content** are produced.

Other functions of the master publishing server 58 include creation of packages of relationships and **content** for exchange with other elearning platforms belonging to other entities.

The master publishing server 58 interfaces with the master portal server 62 and distributes the metadata in the knowledge database 68 and the **content** in the knowledge repository 70 to the master portal server 62. In other words, the master publishing server 58 releases unpublished **content** to the master portal server 62 for publication and outside access. The master portal server 62 handles the delivery of the training **content** to the users 16b and receives all of their feedback and contributions, all through a standard web browser 66. For a large enterprise, there may... ..located in geographic proximity to the targeted users 16b.

Other functions of the master portal server 62 include performing user 16b authentication and customizing the **content** of the library for each user 16b or groups of users 16b. In order to perform authentication, a link is provided between the master portal... ..service, Windows NT, and so on. Each user 16b also has an ID account 76 on the system where information is kept regarding what **content** the user 16b accessed, when the access occurred, and the results of any test the user 16b takes. This information is used by the management application 68 to provide system statistics.

The primary purpose of the master portal server 62 is to use the **content** relationships to filter and customize the **content** from the library specifically for each user 16b.

According to the present invention, the elearning platform 10 allows each user 16b of the portal 12... ..to the interests and job role of the user. The personal dashboard is a management tool for managing the learning activity, controlling access to the **content** in the knowledge repository 70, performing user 16b authentication for security, and supporting searching.

By virtue of the user's job, the knowledge database 68 may include **content** targeted towards that job role. Some **content** in the library may be pushed to a user 16b by virtue of the group, or groups, the user 16b is associated with. Other **content** from the library may be pulled by the user 16b by the user 16b indicating his/her preferences and by enrolling in other groups. For... ..on the groups the user 16b is identified as belonging to, the master portal server 62 dynamically builds web pages showing the user 16b the **content** associated ID with his/her groups using XML and style sheets. As an example, assume an enterprise has established a CFO group. A user... ..created for each user 16b depending on their roles in the company. Depending on the user's role, one user 16b may view the same **content** as another user, but one user 16b may be shown a blue background and one set of options, while the other user 16b be shown... ..to the right

target audiences, thereby providing targeted learning through personalization.

The reporting and feedback component of the elearning platform 10 enables users to put **content** specific information back into the system using a web browser 66, the master portal server 62, and the management application 67. This is accomplished by displaying a form to the user to fill-in. Since the system knows the author of the **content** that the user is commenting on, and the groups the user belongs to, due to the relationships stored in the knowledge repository 70, some fields... ..pre-filled in.

The feedback provided by the user 16b may include test scores, comments to the author, comments to the publisher, questions about the **content**, and contributions to the **content**. All feedback is specific to the chunk of data and to the groups that the user 16b is participating in. Therefore, only other users 16b... ..the servers, and enterprise managers. 15 For example, the manager application 67 may allow the learner to obtain transcripts of progress through the learning **material**. The manager application 67 may also generate a series of reports for the hardware system administrator regarding scaling information and potential system problems. And the... ..same level, for instance. The enterprise manager may also use the manager application 67 to make sure that the users 16b have the right training **material** at the right time.

A further aspect of the present invention is allowing the users 16b to learn offline by downloading packaged information from the publishing servers 62 and 64, and the ability to provide feedback after reviewing the **content**. This requires the ability to package related information in order for the information to be downloaded and taken off-line. In order to create the... ..web page, or a series of related hyperlinks for nested levels of web pages. When the package is created, the hyperlinks are traversed and the **content** from those links are pulled into the package.

This notion of packaging is also important because the platform 10 is designed to work worldwide because...in one of two ways.

One method is through the delivery system where the business partner acts as a user 16b and accesses the training **material** from the enterprise's master portal server 62.

The other method is for the business partner to have its own elearning platform 10 and to exchange packages between the two master publishing servers 58 and deliver the training **material** to their own people.

The present invention allows employees of an enterprise who have specialized knowledge about a subject to quickly author **content** about that subject and have the **content** made available over the Internet to other users 16b of the elearning portal 12 in such a way that the **content** is customized for viewing based on which users 16b or class of users 16b are accessing the **content**. The author and managers of an enterprise may also be provided with statistics of which users 16b viewed the information, and whether the users 16b... ..response, the author may answer the questions, and share the contributions of colleagues. The present invention solves the obsolescence issue because

as soon as the **content** and responses are posted, all users 16b have access to the most current information, unlike video, books and CID-ROMs. Because there's only one...

## Claims:

1 A method for providing a knowledge exchange portal, comprising the steps of: a) enabling users to author and post **content** to a site on a network from the user's computer; b) managing storage of the **content** and user access to the **content**; c) customizing delivery of the **content** for different users when users attempt to access the **content**; and d) enabling users to provide feedback on the customized **content** and making the feedback available to other users. 2 The method of claim 1 further including the step of: e) providing **content** utilization and user statistics for the portal. 3 The method of claim 2 further including the step of providing at least one publishing server for managing storage of the **content** and user access to the **content**. 4 The method of claim 3 further including the step of providing authoring enablers on the users' computers for authoring and posting the **content**, the **content** being of many types, including multimedia presentations. 5 The method of claim 4 further including the step of allowing the user to enter information regarding the **content** for indexing the **content** on the publishing server. 6 The method of claim 5 further including the step of including an external reference on the publishing server to **content** stored externally from the knowledge exchange portal. 7 The method of claim 6 further including the step of providing at least one portal server for customizing delivery of the **content**. 8 The method of claim 7 further including the step of storing the **content** as discrete elements of data. 9 The method of claim 8 wherein the step of customizing the **content** further includes the step of delivering various combinations of the discrete elements to different users. 10 The method of claim 9 wherein the step of customizing the **content** includes the step of determining group membership associations. 11 The method of claim 10 further including the step of allowing employees, customers, and business partners to access the **content** on the knowledge exchange portal. 12 The method of claim 11 wherein the step of managing storage of the **content** further includes merging new training **material** and existing training **material**. 13 A system for providing a knowledge exchange portal over a network, comprising: a **content** authoring component for enabling personnel to create **content** and post the **content** on the knowledge exchange portal from personal computers; a **content** organization and management component in communication with the **content** authoring component for storing the **content** and relationships between the **content**; a **content** dissemination component in communication with the **content** organization and management component for disseminating the **content** to a user of the knowledge exchange portal through a standard browser interface on the user's personal computer based on the relationships between the **content**; and a reporting and feedback component in communication with the **content** dissemination component for collecting **content** utilization and user statistics for the knowledge exchange portal and making the statistics available to the enterprise. 14 The system of claim 13 wherein the **content** disseminated to the user is customized for the user. 15 The system of claim 14 wherein the **content** is customized based on group membership association. 16 The system of claim 15 wherein the **content** is customized based on a personal dashboard setup by the

user that controls access to the **content** stored on the knowledge exchange portal.17 The system of claim 14 wherein the **content** authoring component comprises authoring enablers working in conjunction with the personal computers.01 8 The system of claim 17 wherein the authoring enablers include software plug-ins for application programs.1 9 The system of claim 14 wherein the **content** organization and5 management component comprises at least one a master publishing server and one or more remote publishing servers that communicate with the authoring... ..of claim 19 wherein the master publishing server further includes a knowledge database for storing a database schema, and a knowledge repository for storing the **content**.21 The system of claim 20 wherein the knowledge database includes an external reference to **content** stored externally from the knowledge exchange portal.22 The system of claim 21 wherein the **content** dissemination component includes at least one master portal server and one or more remote portal servers.23 The system of claim 22 wherein the reporting... ..computers coupled to a network, wherein at least a portion of the computers include a browser and an authoring enabler, wherein the authoring enabler synchronizes **audio** and video with **content** created on the computer to create multimedia **content**; and a knowledge exchange portal accessible to the computers over the network, the knowledge exchange portal including, at least one publishing server for receiving the **content** from the computers, and for organizing and storing the **content** in discrete elements, and at least one portal server coupled to the publishing server, the portal server for, authenticating users who log into the knowledge exchange portal, customizing the **content** stored on the publishing server based on an identity of the 1 0 user, delivering the customized **content** to the user's browser for viewing, and allowing a user to provide feedback based on the viewed **content**, such that the feedback is stored on the publishing server for access by other users. 1 5 25 The elearning platform of claim 24 wherein... ..in for application programs. 26 The elearning platform of claim 25 wherein the feedback provided by the user is associated with a particular element of **content** being viewed.27 The elearning platform of claim 26 wherein the portal server further functions to allow the user to download packaged information for off-line learning.28 The elearning platform of claim 27 wherein the packaged information includes imported **content** from external websites.29 The elearning platform of claim 28 wherein the publishing server is capable of sharing **content** with a publishing server that is external to the knowledge portal.

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## VERTICAL SERVICES INTEGRATION ENABLED CONTENT DISTRIBUTION MECHANISMS

	Country	Number	Kind	Date
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	Country	Number	Kind	Date
Patent				19

### English Abstract:

...user (25), without compromising the integrity of the user's guaranteed bit rate to the internet through the AND (10). One such vertical service is **content** downloadable at a high data rate from a local **content** server located in or proximate a central office that serves the end user (25). The **content** of the local **content** server is **updated** and upgraded periodically and systematically from a central **content** server that distributes **content** to a plurality of central offices. The **content** is distributed between the central **content** server and the respective local **content** servers using bandwidth of an ATM network (19) that is unused by subscriber traffic.

### Detailed Description:

#### VERTICAL SERVICES INTEGRATION ENABLED CONTENT DISTRIBUTION MECHANISM

##### Technical Field

Certain concepts involved in the present invention relate to techniques for implementing data communication services, for example in a local access... line technology, to support quality of service (QoS) and local introduction of vertical services. Other concepts involved in the present invention relate to distribution of **content** from a hubsite to a server located at a central office through such I/O network.

##### Background

Modern society continues to create exponentially increasing... ATM cell traffic employs the Unspecified Bit Rate (UBR) class of service, which does not provide any bandwidth or delay guarantees. Consequently, transport of video **materials** through such DSL data networks inflicts video delays, loss of **audio**/video synchronization, and image... needs of conventional communications networks. There is a further need for services on a 'vertical' basis within the local access network for distribution of **content** to the customer. There is an additional need to transfer **content** from a central **content** server within a hubsite to local **content** servers within the respective central offices, in a manner that will not compromise the quality of service for broader network traffic between the hubsite and... multiple sessions from various customer premises data equipment over a 1.5 single logical communications session.

A further objective of the invention is to distribute **content** between a central **content** server within a hubsite and local **content** servers in the vertical services domains of the respective central offices. The distribution of **content** is accomplished utilizing bandwidth between the hubsite and the respective vertical services domains that are unused by subscriber traffic.

The preferred embodiments of the invention... providing an IP interface for coupling to

the vertical services network. For example, it is a simple matter to connect any digital source of broadcast **audio** or video information, such as a direct satellite broadcast receiver system similar to those used today in residential applications, through an IP interface. Such a... ..service over the digital subscriber line circuits to customers desiring to view the programming.

A further aspect of the invention relates to the distribution of **content** from a 1 5 central **content** server within a hubsite to local **content** servers within the respective vertical services domains of the respective central offices. **Content** is routinely and periodically distributed between a plurality of vertical services domains and a hubsite.

The hubsite may include a gateway router, which is an ATM switch, and the central **content** server in communication with the gateway router. Each of the central offices may house another ATM switch with vertical services insertion capabilities and local **content** servers in communication with the ATM switch. The **content** is distributed, such that the distribution of **content** does not interfere with subscriber traffic between the gateway router at the hubsite and the respective ATM switches at the respective central offices.

This is... ..unused bandwidth between the hubsite and respective central offices during time periods when subscriber traffic does not utilize the entirety of this bandwidth. Once the **content** is distributed and stored on the local **content** servers at the respective central offices, the end users served by each central office can access **content** at a high speed from the vertical services domain without - 16 compromising the bandwidth allocated for internet traffic between the hubsite and the respective central office.

A further aspect of the invention relates to unique software for implementing the distribution of **content**. A software product, in accord with this aspect, includes at least one machine readable medium and programming code, carried by that medium. Although the inventive... ..use in the inventive network of Figs. 1

Fig. 4B is a functional block diagram of a digital subscriber line data network with a central **content** server proximate to the hubsite and a local **content** server in the vertical 1 5 services domain, proximate to the central office.

Fig. 4C is a bandwidth utilization graph illustrating **content** distribution over bandwidth unused by subscriber traffic, in accord with the invention.

Fig. 5 is a block diagram of a modified portion of the network... ..combined communications downstream over the subscriber's logical circuit to the customer premises, at the optimum downstream rate that the subscriber's facilities can support.

**Content** data stored on a central **content** server at a hubsite is systematically and periodically replicated and **updated** to and from local **content** servers at the respective central offices. The local **content** servers are in the vertical services domain at the respective central offices. Accordingly, a customer serviced by a central office has access

to the **content** stored on the local **content** servers at a relatively high data rate that does not substantially compromise the rate to which the customers access a broader network, such as the Internet. Data replicated from the central **content** server to the respective local **content** servers can be conveniently communicated over the link between the hubsite and central offices, which also carries the customer's broader network traffic. The present - 20 invention mitigates the problem of network congestion during replication of data between the central **content** server and the respective local **content** servers, by only transferring such **content** data using bandwidth that is not used by the broader network traffic. This aspect of the invention requires continuous analysis of the bandwidth utilization. of...SNMP, r1ein-'et

Batch

Unlaimm 6

er Other

(Low 51/o)

me 7 FTP, TFTP, SMTP

I sensitive

The access switch 19 will examine the **content** of each communication and determine an appropriate ToS level, for example in accord with the table above. Based on the ToS level, the switch will... ..streams and the PPPoE stream enables the operator to control flows through the ADN 10 so that the local access facility is not overwhelmed with **content** which exceeds its physical (rate adaptive) limitations.

For example, the queuing rules preferably ensure that the 'proper' applications (based on insertion device based rules) obtain...services domain 13 may follow 5 any other desirable business model. For example, a multicast service provider may contract with the canier to provide multicast **audio** (radio-like) and/or video (TV-like) services via the vertical services domain. The multicast service provider, not the subscribers, would pay the canier. The... ..customers having demographic profiles meeting specific criteria specified by individual advertisers, which allows the multicast service provider to charge premium advertising rates.

For on-demand **content** service, such as the downloading of movies, music, games, on-line books, and other bulk on-demand data, the **content** provider can store such data in a local **content** server 32 in the vertical services domain 13, as shown in Figure 4B. In one embodiment, a user might download **content** stored on the local **content** server 32 by entering a LTRL or selecting a web-based link to the vertical services domain (without PPP or PPPoE) directing the download request to the local **content** server 32. As described above, the **content** will be transmitted to the end user through the VSI ATM switch 19, DSLAM 17, and ATU-R 23.

The **content** stored on the local **content** server @2 can, in one embodiment, be distributed to the local **content** server 32 from a hubsite 24 separated from the central office 15 by a transmission line 27. It is often desirable to distribute **content** in this manner for many reasons. One such reason is that it is often desirable for **content** to be distributed or **updated** frequently. For example, if the **content** is a movie in a digital format and end users want the most recently released movies, the **content** on the local

**content** server 32 must be **updated** often to include the most recently released movies in digital format. Another reason why it is desirable for **content** to be distributed through transmission line 27 is that such a distribution can be automatic and require minimal maintenance by a system administrator at the central office 15. One of ordinary skill in the art would recognize other advantages of distributing **content** from a central **content** server 28 to a number of dispersed local **content** servers 32.

Typically a hubsite, housing the gateway router 29, services several central offices 15. The hubsite 24 is a prime location for housing a central **content** server 28. The central **content** server 28 stores **content** that is to be distributed to the vertical service domains 13 of the respective central offices 15. Accordingly, a **content** provider can maintain the **content** stored on the central **content** server 28 and **update** the local **content** servers 32 located at the respective central offices 15 automatically and periodically. One of ordinary skill in the art would recognize other obvious locations for a central **content** server on a network.

One disadvantage of automatic **updating** of **content** on the local **content** servers 32 from the central **content** server 28, is that the bandwidth on transmission line 27 between the hubsite 24 and the central office 15 is a limited resource. One of ordinary skill in the art would recognize that it is undesirable for **content** distribution to interfere or - 43 compromise the guaranteed transmission rate of subscriber traffic transmitted over transmission line 27. A solution to this problem, is a mechanism that determines unused bandwidth over transmission line 27 and only transmits **content** from the central **content** server 28 to the local **content** server 32 using bandwidth that is unused by subscriber traffic. It is desirable to distribute **content** from a central **content** server 28 to a local **content** server 32, but it is undesirable for such distribution to interfere with the quality of subscriber traffic. The mechanism described above only distributes **content** using unused bandwidth of transmission line 27 having the advantage of distributing **content** without interfering with the quality of subscriber traffic.

Figure 4C is an exemplary illustration of bandwidth utilization, in terms of time, for exemplary transmission line... ..within the architecture of the hubsite 24 and the central office 15 to monitor the bandwidth utilization of subscriber traffic 62. Using bandwidth utilization information, **content** distribution 64 can be implemented over bandwidth unused by subscriber traffic 62. **Content** distribution 64 fills up the bandwidth of transmission line when subscriber traffic 62 utilizes less than 100% of the bandwidth of the transmission line 7.

It is important to note that region 66 of Fig. 4C is bandwidth reserved for **content** distribution. Normally this reserved bandwidth 66 is minimal and merely serves the purpose of maintaining sessions between the central **content** server 28 and local **content** servers 32 for **content** distribution 64.

The mechanism for distributing **content** from the central **content** server 28 to the local server 32 must utilize a congestion mechanism to prevent data loss and utilize unused bandwidth. One such congestion mechanism is Transmission Control Protocol (TCP). In

one exemplary embodiment, the central **content** server 28 is in communication with the gateway router 29 and the local **content** server 32 is in communication with the VSI ATM switch 19. This particular mechanism for distributing **content** from the central **content** server 29 to the local **content** server 32 is contained in the gateway router 29 and the VSI ATM switch 19, which are both ATM devices capable of prioritizing data transmission... ..the VSI ATM switch 19. The priority 1 5 for UBR service is low. As a result, the switches 29 and 19 will throttle the **content** transmissions from the server 28 to only consume otherwise available bandwidth as shown at 64.

One skilled in the art would also recognize the **content** can be distributed from a local **content** server 32 to a central **content** server 28 in the same manner as discussed above. One example of when this is desirable, is when the **content** provider is an end user 25 at central office 15. Such a **content** provider would upload **content** to the local **content** server 32 in the respective central office 15 and then the **content** would be distributed from the local **content** server 32 to the central **content** server 28 for distribution to other local **content** servers at other central offices 15.

In one exemplary embodiment, the present invention is a software product for replicating **content** data from a server 28 at a hubsite 24 to servers 32 at a respective central offices 15. The software product comprises at least one... ..and 32. The congestion mechanism may also rely on UBR service capabilities through ATM switches. The first transmitting mechanism causes the hubsite server to transmit **content** to a second server, via the otherwise unused bandwidth, e.g. as TCP over UBR ATM transport. The programming code may further comprise a second transmitting mechanism for causing transmission of **content** data stored at the central office, e.g. on server 32, to the customer. More particularly, the second transmitting mechanism may cause the transmission of the **content** data stored at the central office to an ATM switch 19 at the central office 15. The second transmitting mechanism then causes the integration of the **content** data with other data being transmitting to the customer through the ATM switch 19 in the central office 15 to the customer equipment 1 5... ..Local VOD Servers or access to centralized ffigh bandwidth, low jitter, high (LJnicast) servers. availability, and low packet loss  
Supports whatever model of server deployment/**content** delivery mechanism.

Multimedia Broadcast Broadcast Video; Broadcast **Audio**; Satellite Varies with **content** type and with (Multicast) Down Link support; Local Servers at the edge. multicast implementation Caching Services Local servers at the insertion point, Local Layer 3/4 visibility  
delivery mechanism for generic media objects  
such as web pages, images, video files, **audio** clips, software downloads, etc.

**Distance Learning** (EVC) Integrated interactive video, voice and data Low latency, low jitter, non correlated packet loss, and high

availability

Telecommuting Closed user group with access to Transparent...to share a single PPPoE link among multiple home devices 9011-9014 and improves security by preventing direct communication with the devices 9011-9014, Of **course**, the PPPoE proxy arrangement is optional. Devices 9011-9014 can also independently establish their own PPPoE links so that each of them has a separate...

## Claims:

I A method of replicating **content** data stored on a first server to at least one second server, comprising the steps:determining unused bandwidth on a portion of a common link of an Asynchronous Transfer Mode (ATM) network, over which the first server and the at least one secondserver communicate; andtransmitting **content** data stored on the first server to the at least one second server substantially on the determined unused bandwidth.

2 The method of claim 1... ..DSL) service to the at least one end user terminal.

1 5 4. The method of claim 2, wherein:the first server is a local **content** server; andsaid at least one second server comprises a central **content** server.5 . The method of claim 4, wherein:the local **content** server is located in a central office that provides DigitalSubscriber Line (DSL) service to the at least one end user terminal; andthe central **content** server is located in a hbsite comprising a gateway router.

6 The method of claim 1, comprising the finther steps of:

storing the **content** data transmitted to the at least one second server on the at leastone second server; andtransmitting the **content** data stored on the at least one second server to at least one end user terminal proximate to the at least one second server. - 64

7 The method of claim 6, wherein the step of transmitting the **content** data stored on the at least one second server to the at least one end user terminal proximate to the at least one server comprises the steps of. transmitting the **content** data stored on the at least one second server to the at least one ATM switch, wherein the at least one ATM switch is proximate to the at least one

second server and is an endpoint of the portion of the ATM network;integrating the **content** data transmitted from the at least one second server withother data destined to the at least one end user terminal; anddistributing the integrated... ..claim 7, wherein the multiplexer is a Digital Subscriber Line Access Multiplexer (DSLAM).

9 The method of claim 6, wherein the step of transmitting the **content** data stored on the at least one second server to the at least one end user terminal proximate to the at least 1 5 one... ..network domain; receiving second downstream transmissions intended for the at least one end user terminal from the second network domain at the intermediate node including **content** data

from the at least one second servers; andinserting the second downstream transmissions into the logical communication circuit, to combine the first and second... ..circuit. ' 12.

The method of claim 1, wherein a part of the bandwidth of the portion of the ATM network is designated for transmitting the **content** data stored on the first server to the at least one second server to prevent the loss of a session between the first server and the at least one second server.

13 The method of claim 1, wherein the steps of determining unused bandwidth and transmitting **content** data implement a congestion mechanism to prevent data loss and utilize unused bandwidth.

14 The method of claim 13, wherein the congestion mechanism comprises Transmission... ..of the ATM network also carries logical circuits for wide area data communications of a plurality end user terminals.

17 A software product for replicating **content** data stored on a first server to at least one second server, said software product comprising: at least one machine readable medium; and programming code... ..Mode (ATM) network, over which the first server and the at least one second server communicate; and a first transmitting mechanism for causing transmission of **content** data stored on the first server to the at least one second server ...is Transmission Control Protocol (TCP).

19 The software product as in claim 18, wherein the first transmitting mechanism is for causing the transmission of **content** data using an unspecified bit rate service.

20 The software product of claim 17, wherein the programming code comprises a second transmitting mechanism for causing the transmission of the **content** data stored on the at least one second server to at least one end user proximate to the at least one second server.

21 The software product of claim 20, wherein the second transmitting mechanism: causes transmission of the **content** data stored on the at least one second server to at least one ATM switch, wherein the at least one ATM switch is proximate to... ..of the portion of - 67 the ATM network over which the first server and the at least one second server communicate; causes integration of the **content** data transmitted from the at least one second server with data destined to the at least one end user; and causes the distribution of the... ..the bandwidth of the portion of the ATM network between the first server and the at least one second server is designated for transmitting the **content** data stored on the first server to the at least one second server to prevent the loss of a session between the first server and... ..providing access services to at least two different network domains, comprising: a communication access node coupled to a first network domain; 15 a central **content** server for storing **content** data coupled to the communication access node; a plurality of digital subscriber line transceivers coupled to network ends of subscriber lines, for data communication with... ..provisioned to extend from a respective customer premises to the communication access node; a second network domain coupled locally to the access switch; a local **content** server for storing **content** data coupled to the second network domain; a logical communication circuit for **content** distribution between the central **content** server and the local **content** server. provisioned through the access switch and the highspeed data link, the provisioning of the logical communication circuit for **content** distribution enabling communication of **content** data **between** the communication **access** node and the **access** switch over bandwidth unused by traffic on the layer-2 protocol logical communication circuits; and a controller associated with the access switch, for examining communicated... ..communication access node, over a respective logical communication circuit; receives second downstream transmissions intended for the one customer premises from the second network domain, wherein

**content** stored on the local **content** server is transmitted to the one customer premises over at least some of the second downstream transmissions; and inserts the second downstream transmissions into the... subscriber line transceivers which serves the one customer premises.

24 A network as in claim 19, wherein the provisioning of the logical communication circuit for **content** distribution assigns unspecified bit rate service thereto with a minimum service guarantee.

25 A network as in claim 23, wherein each of the logical communication...

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	Country	Number	Kind	Date
Patent				19

### Detailed Description:

#### A SYSTEM FOR MATCHING CUSTOMERS WITH CONSULTANTS

##### Co-Dvright Notice

A portion of the disclosure of this patent document contains **material** which is subject to copyright protection. The copyright owner has no objection to the facsimile reproduction by anyone of the patent document or the patent... development activities on the part of service providers. That inefficiency contributes to a bloated cost structure of these service providers.

That cost, of **course**, is ultimately borne by the corporate customer (the firm using service providers) and thus offsets somewhat the desired savings on the part of the customer...subject area, the subcategory, and the expert level are stored in an expert qualifications database, which can be in multimedia form (e.g., text, video, **audio**) and transmitted to customers; alternatively, the system can search the expert qualifications database through any of a variety of search protocols to weed out, e...and will resume the process at the next entry point when the respondent returns to the questionnaire activity.

Still other uses for the invention include **distance learning**.

##### Brief Description of the Drawings

A preferred embodiment of the present invention will be set forth in detail with reference to the drawings, in...13 shows a flow chart of operations for designing and taking a

survey; Fig. 14 shows a flow chart of operations for setting up a **distance learning course**; Fig. 15 shows a schematic diagram of the software components of the system of Fig. 1;

Fig. 16 shows an access engine which manages the... 106 through Internet connections 108, 110, which can be any type of Internet connection, from dial-up to high-speed optical connections. Of **course**, both the expert service provider 102 and the potential customer 104 can use any type of microcomputer or other device capable of accessing the Internet... the subscription that the user is ordering (typically one month). In step 324, the user proceeds to step 210 of entering the data. Of **course**, a variety of registration techniques are known in the art and can be used.

Step 210 is carried out through the use of... the primary area, the user has the option of selecting secondary and tertiary areas of expertise through the page 700 shown in Fig. 7. Of **course**, for the secondary and tertiary areas, the user also selects sub-areas and a 15 level of expertise in each sub-area.

The result... consulting for as long as the project requires" in the area 408; thus, Expert 3's availability can be graphed as the bar 806. Of **course**, a chart like that of Fig. 8 does not have to be stored, as it can quickly be rederived from the logical "true" and "false... distribution list for participants will be

27

activated and the representative will notify the corporate subscriber client that the process is in place.

During the **course** of a corporate client's subscription period, there will be instances where special services will be desirable. Special services may be requested either through the... for continuing education activities. This facility will be supported by the Corporate clients, by professional certification associations, and in some instances by institutions of higher **learning**.

The **Distance Learning** Facility will provide health care professionals with the ability to continue their education at a comfortable pace and with minimal interruption to their busy work... will be operated by a special software engine that will provide the lesson topics, conduct the examinations, and respond with grading of testing activity.

The **Distance Learning** Facility (DLF) will also provide a calendar of events for training seminars, conferences, and related events that contribute to health care professional certification and continuing education requirements. Corporate clients may utilize the facilities for scheduling **courses** or seminars in conjunction with educational institutions who will provide the educational credits.

Computer Based Training facilities have been used very successfully by the... credit requirements from a facility off-campus. In the late 1980's, higher education institutions began using a derivative of the CBT methodology to implement **Distance Learning** for students, many of whom never attend classes on campus.

With the advent of the Internet's World Wide Web, the concept of Distance Learning and Computer Based Training matured and is currently being implemented by many large schools for their student body. Primarily, **distance learning** is utilized by individuals who, are already in the work place, and cannot afford the time necessary to attend formal classroom facilities on campus.

29

The Biosciences Corporation web site utilizes the, capabilities of a special **Distance Learning Facility (DLF)** software engine to create, maintain and manage **distance learning** facilities for our corporate and higher education clients. This engine provides the capability to create a full function **distance learning** facility for health care professionals including physicians, nursing staff, and others. The **distance learning** facility engine can create DLF **courses** that are high level general interest in scope, through detailed highly specialized **courses** that are useful to professionals in maintaining their skills and knowledge base.

The DLF engine will enable a corporate client to create a special program that is oriented toward their product line, with associated specialized knowledge **content** that would encourage 10 health care professionals to participate and provide a forum for marketing their products.

Corporate clients could also create a learning package... ..with qualified instruction and information in their specialty fields.

The DLF facility could also be used by corporate entities to construct a combination of **web based distance learning** with related seminars in various locations to encourage professionals to sign up and attend.

When a corporate client wishes to make use of the DLF...initial creation of the DLF entries. When the DLF is published, the service will receive a fee for each participant who accesses and utilizes the **courseware**.

30

Once the agreement has been completed, the, user or initiator will be presented with a screen that will enable the **courseware** setup process. The initiator will indicate whether the **courseware** is to be constructed using the DLF engine or whether the **courseware** is already developed by the corporation and will be downloaded to the site. If the **courseware** is to be downloaded, the initiator must attest that the **courseware** engine is already web compliant. If the Corporate-supplied **courseware** is not web compliant, the initiator must agree to submit the **courseware** to the Biosciences Corporation engine for migration.

In the initial processes, the initiator will be required in step 1402 to specify the qualifier settings for the **course** to be published. This will include the type of **course** such as drug protocol 10 testing, drug or procedure interactions, specific health care specialty information, or other type of knowledge base information.

The initiator... ..health care technicians such as x-ray, pulmonary, or laboratory techs.

1 5 If there is to be a seminar conducted in association with the **courseware**, the initiator will enter the date, time and location of the seminar. If there are to be multiple seminars in various location cities, the initiator... ..seminar calendar and ensure that the related information is entered into this facility as well.

The DLF Engine will present a form to describe the **course** synopsis. If the **course** is primarily dedicated to a specific product developed by the company, this must be clearly stated in the synopsis.

Existing **courseware** can be migrated in step 1404. Prior to initiating the DLF Engine migration activity, the initiator will be required to attest that the **courseware** to be migrated can

3 1

be implemented legally without encountering any, copyright infringement problems. This certification form must then be printed by the initiator and faxed or mailed to the Biosciences Corporation offices for filing. The migration will continue while this activity is being completed, but the **courseware** will not be published to the web site until the necessary legal document is received and recorded by Biosciences Corporation.

The DLF Engine will then... ..initiator had entered them through the CREATE facility within the DLF Engine. When the migration process has been completed, the DLF Engine will store the **courseware** in a special table until cleared by Biosciences Corporation I O staff for publication. The initiator will then have the opportunity of reviewing the migrated **course content** and can make any **updates**, modifications, corrections, etc as appropriate.

The DLF Engine will then link the migrated **courseware** to the qualifier data records and prepare the **courseware** file for presentation on the PhysicianConnect web site home page. The **course** title and synopsis will be entered into the DLF area listing for review by the health care 1 5 professional subscribers.

The corporate subscriber has the option of creating a **courseware** file using the Biosciences Corporation DLF Engine **Course** Creator in step 1406. This facility will function similar to the Interview Questionnaire Engine facilities in that it will enable the initiator to enter **course** information, questions, etc. as well as prompt the participant for responses or answers.

The DLF **Course** Creator Engine will prompt the initiator for the type of **course**, lecture or information only, information with question and answer, and information with solicitation for study participation. If the **course** includes an associated formal seminar the DLF Engine will prepare a sign up form for the participant to complete if she or he wishes to attend the seminar.

As with the Interview Questionnaire Engine, the **Course** Creator will provide the initiator with a review of the entries on demand. At each entry completion, the engine will offer the opportunity for a... ..restart the process, the engine will pick up the processing at the previously book marked point.

When the initiator has completed all entries for the **courseware**, the Engine will log the completed information in a publish table and offer the initiator the opportunity for one final review prior to the publishing activity. If the initiator chooses to review the **course**, the engine I 0 will present the entries in their entirety and the initiator will have the opportunity of making any final edit changes.

Once the initiator has indicated that the **course** is complete, the DLF engine will transfer the files to the public web area in step 1408 and prepare the **course** for viewing by the intended recipients. Using the qualifier entries to ascertain the targeted participants, the DLF Engine will 1 5 insert an entry into the EDUCATION area of the home page. Whenever a health care subscriber logs onto the web site, and their area of interest matches the **course** entry, the new **course** title will be displayed as available.

At the corporate initiator's discretion, the DLF engine will distribute notification of the **course** availability to selected participants in step 1410, regardless of whether they are subscribers to the Biosciences Corporation web site. This notification process will key off...have certain administrative functions in step 1412 that operate independently of the corporate client, but will provide feed back to the initiator organization regarding the **course** activity. These functions will include;

**Course Critique:** at the completion of the selected **courseware**, the participant will be asked to complete a short critique of the **content**. This critique form will be a standard form generated by the DLF Engine and will accumulate the responses into a report for the corporate 1 0 client.

**Participant Count:** this function will maintain a tally of the total number of participants who access the **course material**. It will also show the number who completed the **course**, the number who halted the **course** and did not return, and the scoring for each participant.

**Participant Scoring:** for those DLF **courses** that have an exam format, the DLF engine 1 5 will maintain a **course** scoring for those questions completed. This score will be provided to the participant at the end of the **course material**. A hard copy output will be available for the participant if desired.

**Archival Function:** the DLF engine will archive the **course** offering **following** a specified period of **access**. This **access** period will be determined by the corporate initiator during the initialsetupactivity.

ThearchivedcoursefilewillbemaintainedontheBiosciencesCorporation archive server for a period of 6 months prior to deletion. Corporate clients may request a longer period of retention or may elect to have the **course** deleted at the end of the availability period.

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If the **course** is to be archived a small storage fee will, be charged for each month of the retention

g  
period.

Accounting Function: the DLF Engine will maintain the necessary counts of usage, storage, length of **course** and other information to provide an set of accounting records that will be used by Biosciences Corporation in billing reconciliation.

A software architecture for implementing...example, the match engine matches experts to service requestors. When using the learning feature, the match engine will search the database for all publications, seminars, **courses**, and advisors who match the requester's criteria. In both systems, the match engine searches the database for all provisions that match at least some... ..of organization and the federal employer I.D. number. The table 1906, used if the user is an individual, has fields for the ID, the **courses** presented by that person, that person's publications, that person's expertise and that 0 person's geographic preference for work. The table 1908 is...

### Claims:

...to the survey in the database server.

34 The method of claim 28, further comprising permitting one of the second parties to I 0 offer **distance learning** to at least a sixth subset of the plurality of first parties. 3 5. A system for matching a plurality of first parties to a...and collects responses to the survey.

4 1. The system of claim 3 5, wherein the database server permits one of the second parties to offer **distance learning** to at least a sixth subset of the plurality of first parties.

42 A memory for storing data in a computer, the memory comprising:  
a...

**Dialog eLink:** [Order File History](#)  
7/K/57 (Item 19 from file: 349)  
DIALOG(R)File 349: PCT FULLTEXT  
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	Country	Number	Kind	Date
Patent				19

**English Abstract:**

...on the screen of the handheld unit. In addition, fast service for likely requested location specific information, search narrowing before Web searching, user behavior habit **learning**, consideration of **Internet** contractual issues, a speedy search engine, an multiple private databases connected by high speed interconnect outside the Internet make searching more timely. Reliability of information... ..placed in local storage. Applications to implement this include online authenticated snapshot update provisioning, Internet page conversion tools, tailored Internet page conversion tools, and Information **Content** Provider tools. The tools learn based on the activities of the user, moving often requested pages to high speed databases and tailoring pages to the...

### Detailed Description:

...web pages tailored for the small screens must be available in handheld units.

### BRIEF SUMMARY OF THE INVENTION

The system needed to support mobile Internet **access** from extended handheld units centers around **two** foci, speed and special **content**. Both of these are served by placing the contents that the user desires as physically close to the user's server as possible. Speed at... ..support services level is needed to compensate for the Cost structure and low bandwidth of wireless communication and the limitations of handheld unit screens. Special **content** is ne'(inverted exclamation mark)iided to present the extensive information in readily interpreted formats that complement the speed services. Speed services are located both... ..use the Internet and. searches that are centered on the set of specialized servers that improve the speed of interaction.

The features that support special **content** for the handheld mobile user include capabilities to allow **content** providers to submit **updates** to their desktop web pages and have that update be formatted both for the desktop and for the handheld screen. The capabilities built into these... ..Include a high-data rate, quick response, avoiding Internet traffic congestion, instant access to information, user friendly GUI and web pages designed with maximum information **content** and less text. The invention Uses existing and developing augmentations to today's mobile phone wireless as a basis for services to supply efficient mobile applications... ..32 that can be converted to a mobile format 34. The search engine further provides Intranet or secure Internet 36 access to specific mobile Internet

**content** provider (ICP) sites 38 'that mirror ICP desktop sites 40. Alternately, the search engine accesses the information by providing efficient conversion 42 of the ICP1s...a standard PDA or mobile phone- Once wireless. communication (inverted exclamation mark)S established, the received signals are decoded to -14

determina whether they are **audio** Signals, which are sent to the telephone functionality incQrporated in the handheld unit', or digital which then are decoded utilizing the mociem portion of the...moving image inputr and interaction areas. Each time a new type of screen is created, a template is saved associated with its particular designer or **content** provider, In addition to adapting- to the format needs of the **content**, the IUM window checks, all designed 8screens for conformance to the target handhelds. Such checks will include check on the size of total page, the size of video **content**, and the interactions expectad when a users views the screen. The luw Window runs in a number of locations in the network including, on the... ...case, the search engine returns a screen to the -user, or tells the user that the inforraation cannot be found.

As the search engine 28 **learns** which desktop **Internet** sit(95 are frequently accessed, (inverted exclamation mark)t will periodically access the site, convert the data and store it in the 20/80 RIDB...phones support messages of unlimited length because the screens are seamlessly refreshed, support. the attachment. of files such as Spreadsheets, documents, pictures, video files and **audio**. The graphical and video support in the PDA phones allow5 full communications of the relevant messages.

Fig. 23 illustrates the contrast between the text displays...

### Claims:

...receiving a message containing a datastream through said mobile digital telephone;recognizing a atreaming video sequence in saiddatastream;decoding said datastream into video and **audio**.Componen-Es;displ.,ying said streaming video component on saidscreen; andplaying said audilo component through said Speaker.

7 The method of claim 6... ...said user;

displaying a first screen of said selected message, said message composed of information selected from graphical information, video information, text information and **audio** information; accessing a follow-on screen of said message while said first screen is being displayed; accepting user input; displaying said follow-on screen... said message in response to a user input.

11 The method of claim 8 wherein said attachments are chosen from spreadsheets, documents, pictures, video and **audio**.

12 The method of claim 8 wherein said Email session is conducted over a communications protocol selected from GSM, GPRS, 3G and Bluetooth,

13 A...screen

viewing area and associating one of said plurality of tags with each said page partition; and saving a formatted screen in an information **content** database.

29 The method of claim 28 further comprising.

saving a process of transforming said web page utilizing said plurality of tags and with... inverted exclamation mark) and if so, apply (inverted exclamation mark)ing said process to said web page; and saving the result in said information **content** database.

**Dialog eLink:** [Order File History](#)

7/K/58 (Item 20 from file: 349)

DIALOG(R) File 349: PCT FULLTEXT

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## SYSTEM AND METHOD FOR OFFERING COURSES

	Country	Number	Kind	Date
Patent				19

### English Abstract:

A system and method in which developing or supporting institutions provide **courses** to be offered by offering institutions by providing the **course content** to instructors and students, via a network such as the internet or by other means, and assigning at least one mentor to provide support to the instructors and offering institutions, in offering the **courses** to students. The support provided by the mentors, via a network such as the internet or via other communication devices, comprises training instructors to teach the **courses**, certifying instructors to teach the **courses**, monitoring student performance, monitoring instructor performance, and responding to inquiries about the **courses** and the system software of the developing or supporting institutions.

### Detailed Description:

## SYSTEM AND METHOD FOR OFFERING COURSES

### FIELD OF THE INVENTION

The present invention relates generally to teaching systems and methods and, in particular, to particularly effective teaching systems and methods for an institution to provide and/or support one or more **courses** offered at one or more offering institutions.

### BACKGROUND OF THE INVENTION

Colleges, universities and other institutions of higher education with top-ranked schools of study... ..ranked schools in various fields of study, including computer science. It is becoming increasingly important, however, for such institutions to offer its students top-quality **courses** in an discipline(section), including **courses** covering state-of-the-art technologies. However, it is also expensive to provide such **courses**. In particular, the expenses for **course** development and for qualified professors and instructors can be high. To alleviate some of these expenses, automated learning or **tutorial** systems have been developed.

With respect to computer science and by way of an example only, the heretofore existing system of higher education has not... ..concepts and techniques, such as used in object-oriented software development, have been slow to be fully utilized due to a significant overhead in providing **courses** covering the latest concepts in software development.

Aceordingly, it would be advantageous to a system and method for providing and/or supporting **courses** to be offered at offering institutions that reduces the costs associated with **course** development and distribution.

### SUMMARY OF THE INVENTION

In general, the present invention preferably comprises systems and methods that enable an institution of higher learning, such as a college or university, to provide and/or support **courses** offered at other 'offerinj' institutions. The institution making the **courses** available and providing support to the offering institutions which offer the same may or may not have been involved in the development or creation of such **courses**.

In a presently preferred embodiment, the teaching systems and methods of the present invention high-quality **courses**, including computer science **courses**, created by a developing institution or provided - 2 .

by a supporting institution are delivered via a state-of-the art database system via the World Wide Web portion of the Internet to offering

institutions supported by mentors assigned by the developing or supporting institutions. The **courses** made available through the teaching system of the present invention are designed to be highly focused, hands on experiences. All **course material** is preferably delivered via the Web, with supplemental readings assigned from specified textbook(s) throughout the **course**. While all **course material** is delivered or assigned via the Web, the curriculum is not intended for use in a strictly **distance learning** environment, where students progress through the **material** at their individual pace. Because of the rigorous nature of the **courses**, instructors, certified by the developing institution or supporting institution, who teach the **courses** at offering institutions are relied upon to a significant degree.

Preferably, the **courses** of the teaching system and method of the present invention are modeled on semester length college **courses** that most faculty at offering institutions and their students find to be highly focused and challenging. Preferably, students spend between 120 - 150 hours on each **course**, broken down as follows: 20 hours of lectures (maximum of 50% in-class time); 20 hours of instructor-led labs and hands on activities (minimum... ..class time); 40-60 hours of hands on time with PC outside of lab or in lab; and 40-50 hours of self-study of **course materials** (on the Web, in textbooks or excerpts and class notes).

- 3

The **courses** offered via the teaching system of the present invention are designed to help orient students to problem solving. These **courses** require a different model of **course** delivery than traditional classes with similar subject matter. Student preparation before each class is a significant ingredient to the effectiveness of the **courses** and, therefore, students preferably are required to read all assigned Web and text **content** and take any quizzes via the system prior to each class session. All assessments or tests preferably are taken by students while logged onto... ..the uploading process properly blocks a student's further access to the system. In addition, a student may not access any other part of a **course** while an exam is being taken.

In accordance with the present invention, the preferred use of face-to-face class time involves the instructors helping students to learn to perform the tasks of the **course**. To encourage students to complete assignments prior to coming to class, quiz grades are preferably recorded before the assigned class and such quiz scores are used in the computation of final grades. Preferably, class time should not be spent by the instructor summarizing and spoon-feeding Web and -textbook **content** to students. Instead, it is preferred that the instructor answer questions,

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clarify concepts, give additional examples, coach students to complete

exercises, direct students to find resources and answers to their own questions, and help the students master the assigned **materials** and tasks.

Preferably, no more than fifty percent of the duration of the class sessions is spent in traditional lecture, and a minimum of fifty...with exercises, in view of the fact that students often need guidance to define problems and to develop strategies to effectively and thoroughly solve the **course** assessments.

The teaching systems and methods of the present invention preferably comprise the use of mentors employed by a developing institution or a supporting institution which provides a **course** or **courses** to be offered at the offering institutions. At least one mentor is assigned to a plurality of offering institutions to remotely monitor and enhance, preferably via the Internet, the performance of instructors and students at the respective offering institutions assigned to the mentor. The role of the **course** mentor is preferably one of support and guidance. The mentors are trained and have the experience to provide support and assistance to instructors throughout **course** preparation and delivery. The mentors assist in areas such as **course content**, technical support, **course** delivery and guidance, and various other types of assistance as instructors progress through a **course**. **Course** mentors will also alert instructors to errors in **course content**, and to portions of the **course** where students frequently encounter problems. Thus, the mentors of the developing or supporting institution help the instructors at the offering institutions to master the **material** of the **courses** and to develop confidence in the use of the **course** software and the web site of the developing or supporting institution. Throughout the process of becoming an instructor certified by the developing or supporting institution and while teaching a **course**, the mentor guides and provides assistance to instructors, as is necessary, to ensure the successful delivery of the **course**.

Students and instructors preferably communicate with the **course** mentor via the Internet, but may also do so by telephone or facsimile if any system problems occur. The mentor normally provides notification as soon... ..to problems or questions so that the developing or supporting institution is better able to resolve the same and to help other instructors teach the **courses** efficiently. Because of the relationships between the developing or supporting institution and the offering institutions, and because assistance is provided to instructors as they deliver the **course materials**, the developing or supporting institution can provide guidance and assistance to instructors for developing **course** schedules and syllabuses to make sure the **course material** is comfortably covered in the term allotted (e.g., a semester, quarter, etc.). Preferably, all quizzes, exercises and assessments have explicit due dates so students don't fall behind schedule.

Preferably, the developing or supporting institution assists the offering institution with lesson preparation for the **courses**. In addition to providing support to instructors with **course materials**, the developing or supporting institution also preferably provides suggested classroom activities and additional hands-on practice exercises for students. All such assistance is preferably provided through the **course** software and through the mentors. Instructors will preferably reciprocate by providing the developing or supporting institution with any exercises or related labs that the instructors developed that might help students master concepts presented in a **course**.

When possible, the mentors preferably provide instructors with **course** outcomes for each **course** to allow instructors to determine what concepts to emphasize during class lecture time. In a preferred embodiment of the teaching system and method of the present invention, the **course** outcomes are reviewed prior to the start of each **course**, and periodically throughout the duration of the **course**. The **course** outcomes provide a comprehensive list of concepts and skills the students should have mastered upon **course** completion. The use of the outcomes helps instructors to focus lectures and to develop classroom activities to reinforce such concepts.

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Because of instructors' relationships... students and the experiences in the classroom, all instructors are in a unique position to provide the developing or supporting institution with feedback regarding the **course materials**, including Web **content**, textbook **materials**, and support from the mentors. As such, the instructors preferably are encouraged to contact the developing or supporting institution mentor at anytime to discuss any concerns, suggestions or questions regarding any aspect of teaching the **courses**.

Preferably, the developing or supporting institution is committed to providing the -highest, quality **courses** possible. Faculty at offering institutions are significant components to the quality assurance process and all relevant feedback is used by the developing or supporting institution to **revise** and improve the **courses**. As the instructors progress through the **courses**, errors in the **course materials**, suggestions for different ways of presenting concepts and organizing the **course** contents, items to be included into or omitted from the **course materials** will likely be identified. All feedback regarding **course** revision and improvement (inverted exclamation mark)S used by the developing or supporting institution, which preferably **revises** each **course** twice annually.

Other features and benefits of the present invention will become apparent from the detailed description with the accompanying

figures contained hereinafter.

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BRIEF... ..FIG. 2 is an embodiment of a login screen for logging into the system of the present invention;

FIG. 3 is an embodiment of a **course** introductory page for a **course** offered via the system of the present invention;

FIG. 4 is an embodiment of a logout screen displayed upon successfully logging out of the system of the present invention;

FIG. 5 is an embodiment of a help screen used by students and instructors for obtaining help in using the **course** software of the system of the present invention;

FIG. 6 is an embodiment of a student record page generated by the system of the present embodiment of a student record screen generated by the system of the present invention;

FIG. 8 is an embodiment of a **course** outline page showing a first level of detail of a **course** outline generated by the system of the present invention;

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FIG. 9 is an embodiment of a **course** outline page showing a second level of detail of a **course** outline generated by the system of the present invention;

FIG. 10 is an embodiment of a **course** outline page showing a third level of detail of a **course** outline generated by the system of the present invention;

FIG. 11 is an embodiment of a "**course** activity blocked" message generated by the system of the present invention;

FIG. 12 is an embodiment of an "access blocked" message generated by the system... ..interface of the system of the present invention;

FIG. 14 is a block diagram illustrating the relationship' between an instructor and the sections of a **course** taught by that instructor and the students in the sections taught by the instructor via the systems and methods of the present invention;

FIG. 15 is an embodiment of a listing, generated by the system of the present invention, of all currently available **courses** for which an instructor has staff access;

FIG. 16 is an embodiment of a histogram for a multiple choice quiz generated by the system of... ..25 is an embodiment of a student roster page generated

by the system of the present invention;

- 11

FIG. 26 is an embodiment of a **course** module list page generated by the system of the present invention;

FIG. 27 is an embodiment of a module details page generated by the system... ..numerals being used to refer to the and corresponding parts of the various drawings.

In a preferred embodiment of the present invention, the **courses**, including **course** schedules, are delivered via the World Wide Web

using the developing or supporting institution **course** software. By using this system, the developing or supporting institution is able to continuously provide the most up-to-date information to all students and up... the system resides in a secure site that relies on the use of cookies for security. Any browser used to access the developing or supporting institution **courses** must be Java-enabled and be configured to accept cookies. In a preferred embodiment, two levels of access are available to instructors at offering institutions. The default user access is - 13 "Student". The system allows each person to be a student in one and only one section of each **course**. Student access provides complete access to **course materials** and provides the same access as actual students have.

Instructors are also given "Staff Access", which provides the necessary interface to view student records, grade students, and locate tools and resources helpful to instructors. Instructors can have staff **access** in multiple sections of any specific **course**. **Prior** to teaching **courses**, instructors preferably work through the **course materials** as their students would. By working through the **materials** and experiencing the **courses** as a student, instructors are in a much better position to assist and to support students.

Because the developing or supporting institution **courses** are on a secure Web site, each user must log in every time he or she wishes to access a **course**. Preferably, each user's web browser is Java-enabled and comprises Internet Explorer 4.06 or a higher version of any of these browsers. Also, each user may only be logged in to one **course** at a time; logging into a new **course** causes the system to automatically discard any previous authentication. Each individual has only one account for all the developing or supporting institution **courses**, so the username and password is the same for all **courses** in which the user is enrolled; changing the password in one **course** changes it for the entire system, and, as a result, the password for all **courses** is changed. As shown in Figure 1, a user logs into the system by going to the developing or supporting institution's Home Page and... drop down arrows at the bottom of the page, selects the correct site from the Site drop down box 12, and the correct **course** from the

Login drop down box 14 and clicks OK 16. The login screen 18 is then displayed as shown in Figure 2. The user... preferably case sensitive. Afterward, by clicking the Login button 24, the system authenticates the username and password, retrieves the user's information, and displays the **course** introductory page 26 (Figure 3) is displayed.

Preferably, when finished using the developing or supporting institution's web site, the user always logs out to... ..the upper right corner of the screen. A Logout Successful screen 30 (Figure 4) is then displayed.

The first time a user logs into a **course**, he/she is preferably presented with a multiple-choice pre-test specific to that **course**. This test is not intended to be used for grading or evaluation purposes, but (inverted exclamation mark)S designed to help the developing or supporting institution continuously improve all **courses**. No other parts of the **course** may be accessed until the pre-test has been completed and submitted. Unlike other multiple-choice assessments, the developing or supporting institution web site does not provide feedback or a score for pre-tests.

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The **course** introduction page 26, as shown in Figure 3, is the first, page to display upon a successful login to a **course**. This page briefly describes the activities a student can perform. with the developing or supporting institution **course** software, as well as provides a brief **course** description and textbook requirements for the **course**. The left-hand column of the **course** introduction page 26 provides a web-based outline 34 for the **course**, which can be used to access **course materials**.

As shown in Figure 5, the help page 36 of each **course** preferably contains general help topics 38 including downloading and using a correct web browser, navigating the **courses**, using the student record, using the **course** message facility, taking exams and quizzes and contacting the developing or supporting institution. Additionally, **course** specific help may also be provided in some **courses**. The help page 36 is accessed by clicking on the "Help" hyperlink 35.

The Student Record page 40 (Figure 6) provides an overview of a student's progress through the **course** as well as access to. coursespecific information such as the Instructor's email 42 and section specific information. Access to the Student Record page 40... ..can be sent to the instructor of the section by clicking on the instructor's name 42. The Section hyperlink 44 provides access to any **course**-specific information, such as class day and time and instructor contact information. Other information, such as class notes, syllabus or 16

class schedule can be... ..to the mentor to be posted for students to access. Instructors having their own web site can also maintain this information thereon by sending the **course** mentor the URL to be included in the section link 44@for students to access.

Preferably, various types of assessments or tests are used in... ..as either practical assessments or constructed assessments. Constructed

responses and/or practical responses are not limited to written text, but may include graphics, videotaped performances, **audio** responses, as well as other forms of responses.

As shown in Figure 6, the feedback of any assessment that has been taken can be viewed... Grade column 45. Any assessment that has not been taken can be taken by clicking the NT link 48 in the Grade column 45. The **course** outline 34 in the left-hand column 32 is preferably used to re-take any assessments.

Assessments that have already been submitted cannot be re-taken through the Student Record page 40.

The Message facility is preferably used by all instructors and students to discuss **course** issues. Only the instructor and the developing - 17 or supporting institution staff, including the mentor have access to view communications from students to protect the... to the instructor of their section. The message facility is accessed by clicking on the "Message" hyperlink 50 in the upper right corner of any **course** page to display a message log 100. If necessary, the scroll bar can be used to view messages lower on the screen. The message can... only text in either ASCII or HTML format. Preferably, it should not be used to transfer large amounts of data, such as exercise submissions.

Each **course** has an outline 34 which can be displayed in one of three levels of detail. Level 1 (Figure 8) displays only the **course** unit numbers 56 and titles 54. Level 2 (Figure 9) displays **course** unit numbers 52 and module numbers 56 and titles 54 as well as exams 58. Level 3 (Figure 10) displays every element of a **course**, including corresponding **course** Web pages 60, exercises 62, quizzes 64 and practice quizzes 66.

Outlines 34 can be used to navigate the **course** contents. The **course** outline is viewed by clicking on the Outline hyperlink 33 in the upper right corner of the screen. By default, the Outline link 33 at... right of the screen displays the Level 1 outline. The Level 1 outline (Figure 8) displays only the Unit numbers 52 and titles of a **course** 54, with links to - 18 each Unit introductory page 26. Access to a more detailed outline (inverted exclamation mark) is obtained by clicking on the desired level of **content** hyperlink 31. The Level 2 outline (Figure 9) displays the Unit numbers 52, Module numbers 56 and titles of the **course** 54, with hyperlinks 51 that provide access to the corresponding web pages of the **course**. The Level 3 outline (Figure 10) displays all pages of the **course**, including section numbers 60 and page titles 61. Access to any of the pages is obtained by clicking on the appropriate hyperlink.

Preferably, two types... assessments typically comprise

ten randomly generated multiple-choice questions and include multiple choice quizzes and exams. Upon the submission of any multiple choice assessment, the **course** software automatically grades the assessment and provides the student with immediate feedback (see Figure 35) for each question, including the location of the correct answer in the assigned text or Web **content**. Multiple choice assessments must be submitted once started, or the **course** software will block the student from accessing any other part of the **course**. (See Figure 11).

Practical assessments require the demonstration of skills set forth in the related **course material**, such as writing a small program or creating a presentation, and include exercises, practical quizzes and practical exams. Practical assessments must be uploaded and submitted... ..contained therein. Failing to complete both steps for any practical quiz or exam results in the student being blocked from all other parts of the **course** until completing the upload and submit process. Practical assessments are graded by the instructor using the ap-Propriate rubric.

Quizzes and exercises may be taken... ..the student and do not need to be proctored. Quizzes and exercises can also be re-taken by students up to five times through the **course** outline 34.

Trying to re-take through the Record page 40 will display the feedback of the original submission and will not give students access... ..restrictions for completion. Preferably,

multiple choice assessments are allotted 30 minutes, and practical portions are generally allotted 45 minutes, although' this may vary by - 20

**course** or due to special circumstances. The **course** software does not provide any message regarding the elapsed time during the progress of an assessment until the assessment has been submitted.

Although spaces in filenames are permitted, the **course** software automatically truncates filenames with spaces by eliminating all characters to the left of the first space after the file extension. Because of this, students... ..files without any spaces in the name.

Once a timed assessment (any quiz or exam portion) has been started, no other part of the **course** may be accessed until the assessment is completed. Trying to **access** any part of a **course after** being blocked will result in an error message as shown in Figure 11. Once a student is blocked, the only way for a student to... ..blank file and use the inmessage facility to communicate with the instructor so the grade for the assessment is not recorded and used for the **course** grade. To access the assessment that is causing the block, the student must go to

the Record page 40 and click the `restart your work...list of functions is available to provide access to various activities needed to effectively teach and support Students.

Additional tools may be provided for some **courses** by the **course** mentor.

As shown in Figure 13, the staff interface 70 is designed for the instructor to communicate with students and staff, grade and provide feedback for practical assessments and tasks, monitor student progress and manage students. **Courses** are broken down into components or units 52, modules 56, pages 61 and graded tasks 68. Tasks 68 are based on **course material** and include exercises, quizzes and exams. Practical assessments are graded by instructors, and randomly generated multiple choice sections are graded by the system software.

All instructors... ..grades, student messages, and other teacher functions. Access to the Staff Interface 70 is determined when the user initially logs in to the system. For **courses** in which instructors have Staff level access, the necessary links and tools can be reached via the Record page 40 (see Figure 6) or the... ..Only instructors and mentors have access to staff level functions. Individuals without staff privileges do not have access to the Staff Interface 70 of the **course**. The Staff Interface documentation can be accessed on the Web or by clicking the INST section link 116 on the Student Record page as shown in Figure 29.

For individuals with Staff permissions, a Staff hyperlink 69 is displayed in the upper right corner of, for example, the **course** introductory page 26. For individuals having no Staff permissions, the Staff hyperlink 69 is not displayed.

The Staff Interface 70 may also be accessed from the **course** introductory screen 26 by clicking the Record hyperlink 39 in the upper right hand corner to access the student record page 40 upon which the "Go to Staff Interface" hyperlink 71 (Figure 6) is displayed for individuals who have Staff permissions in a specific **course**. Clicking on the hyperlink 71 brings up the Staff Interface 70.

As shown in Figure 13, the Main menu 72 of the Staff Interface 70 provides access to the various functions 73 and tools of **course** software specific to instructing a **course**. Clicking the "Ungraded Assessments" link 74 brings up a list of the tasks for all students yet to be graded for the current section. The... ..with a selected student or all students The "Student Roster" link 76, provides access to a list of all active students for that instructor. The "**Course** Module List link 78 lists all modules in the - 23 **course**. The < **course**. The "All Grades for Current Section" link 82 displays all grades for all tasks for all students in the section. The "All Grades for All My Sections" link 84

displays all grades for all tasks for all students in all sections for that instructor. The **Course** Permissions by Student link 86 turns on/off permission for students to take exams. The "Dropped Students" link 88 lists the students dropped from the current section. The **Staff Courses** link 90 lists the **courses** for which the user is an instructor.

The main menu 72 of the staff interface 70 can be accessed at any time by clicking on... ..section-specific. Preferably, all active instructors will have access to three sections; an INSTRUCTOR section 43 for all instructors currently teaching a section of the **course**, a ZSOLUTIONS section 47 which contains all solutions and rubrics for the **course**, and the **course** section they are currently teaching.

Students are grouped into sections within a **course**, with one instructor having primary responsibility for that section. Preferably, only one section can be worked with at a time. Sections, are sorted alphabetically in... ..in the "Current section is:" drop down box 77. Figure 14 is an illustration of the relationship between an instructor and the sections of a **course** for that instructor.

The Instructor section is the section for all instructors who are currently teaching a section of a **course**. This section provides student level access to **course materials**. Preferably, only the developing or supporting institution employees have staff permissions in this section.

The message board in this section is preferably used by instructors to communicate with the **course** mentor regarding any **course**-related issues.

The ZSOL or ZSOLUTIONS section 47 provides solutions and rubrics for all instructor-graded assessments. Access to the solutions and rubrics is obtained... ..do not grade assessments in ZSOL section 47, since that would render any such assessments unavailable to other instructors.

Instructors have staff privileges for all **courses** they are currently teaching. Preferably, the sections are named according to the naming scheme of the offering institution in order to make it easier for area for instructors working towards certification (from the developing or supporting institution) to work through the Web **content** and become familiar with the student interface **course** software. Only the developing or supporting institution employees have staff level access to this type of section, so instructor trainees and candidates can feel confident... ..other instructors viewing their performance. Trainees and candidates also preferably use the message board to communicate with the mentor to assist them in mastering the **course material**.

The second training section provides staff level access to all

instructor candidates, and provides instructor trainees the opportunity to experiment with the functionality of the Staff Interface 70. After instructors have had a reasonable amount of experience with the **course** software at the student level and, have demonstrated proficiency in the **course materials**, staff level privileges are granted so that such instructor trainees can master the functionality of the Staff Interface 70.

Navigation among the various sections is... ..change to that section whereupon the staff - 26 functions apply to the newly selected section. An instructor can view a list of all currently available **courses** for which he/she has staff access (See Figure 15) by clicking the Staff **Courses** link 90 on the Main page 72 of the Staff Interface 70. Access to a specific **course** 91 is obtained by clicking the box in which that **course** is named whereupon all staff functions 73 apply to the selected **course**. As shown in Figure 16, histograms are a type of graph used to display the grade distribution for an entire section by task and are accessed through the Student Roster link 76, Task List link 80 or **Course** Module List link 78 of the Main page 72 of the Staff Interface 70. Access to the Details page 92 (Figure 18) for a specified... ..messages sent to 'A-11 Student'.

As shown in Figure 26, a list of all modules in the course is displayed by clicking the **Course** Module List link 78 on the Main page 72 of the Staff Interface 70. Clicking the View Students cell 96 for the 27 desired components... ..Screen 98 as shown in Figure 27.

As shown in Figure 28, the task list 99 displaying a list of all tasks 68 in the **course** is displayed by clicking the Task List link 80 on the Main page 72 of the Staff Interface 70. Clicking on the correct link in... ..102 and selecting the alternative desired and the message will be sent to the specified recipient(s).

As shown in Figures 18 and 20, the **course** software keeps a record of all student activity that can be viewed and monitored by all staff members with access to a section. The information...can view a list of students who have not performed any work for a particular module. Such a list can be accessed by clicking the **Course** Module List link 73 on the Main page 72 of the Staff Interface 70. By clicking the 'Go' link 105 in the desired row of the Who Has Not Done Work column 85 on the **Course** Module List page 87 (Figure 26), a list; of all students who have not done any work in the selected module is displayed.

Students fall... ..not by actual student activity. An active student (inverted exclamation mark) is a student who has access to the system and is enrolled in the **course** according to the information of the registrar of the offering institution. A dropped student

is a student who has dropped or withdrawn from the section according to the offering institution's roster. A dropped student cannot access any section in the **course** from which he or she is dropped.

The Student Roster page 37, as shown in Figure 25, is accessed by selecting the Student Roster link... ..the Change Password screen from where the instructor can change the student's password by typing in the new password of at least six characters. The **course** software does not provide confirmation that the password has been changed when a Staff member changes the password for a student.

In a preferred embodiment of the present invention, the **course** software does not grant access to exams until a staff member explicitly turns on the required permissions. After the student uploads and submits the files... ..displayed as shown in Figure 12.

An instructor or the mentor may change the state of exam permissions for an individual student by clicking the **Course** Permissions by Student link 86 on the Main page 72 of the Staff Interface 70. This action displays a list of students for the section... ..18, graded tasks 68, or assessments, include exercises 62, quizzes 64 and exams 65. Multiple-choice quizzes - 32

and exams are graded automatically by the **course** software, while exercises and practical quizzes and exams are graded by the instructor through the feedback page 49 using the appropriate rubric. Each graded task only one section. Selecting the "All my sections" option will display all other sections for the instructor that are available for the current **course** and semester. Clicking a specific student's name on the All Grades page 108 brings up the Details page for that student. Clicking a specific... ..for all students in the current section. The Student Roster link 76 can be used to select a specific student for viewing or grading. The **Course** Module List link 78 can be used by staff to select the entire **course** module to view or grade. The Task List link 80 provides access for selecting a specific task to grade.

As shown in Figure 24, clicking... ..of instances for each assessment, the mentor should be consulted prior to using the Redo function 107.

As shown in Figure 26, clicking on the **Course** Module List link 78 displays modules for components. Clicking the "Go" link 105 in the desired row of the "Who Has Not Done Work" column... ..grade 110 in the Grade column 45 displays the results of a graded assessment. If the corresponding assessment is automatically graded, the feedback provided by **course** software is

displayed. If the assessment is manually graded, the Edit Feedback page 125 is displayed and the instructor can use this page to enter...the Explorer view. As shown in Figure

,34, the directory hierarchy will be created inside the C:

Grader

directory. The directory structure starts with the **course** version, and then has subdirectories of each, section. Inside the section directories, there are located unit directories, with the unit number and unit name as the name of the directory. From this point, the hierarchy matches that; of the **course**.

there are directories for each assessment in the appropriate place as it (inverted exclamation mark)S

in the **course** listed as subdirectories of the appropriate components,

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modules, or pages in which they exist. Inside of the assessment will be

directories for each student... ..illustrating

that this variable should be set to the path to the particular

jdk on the instructor's computer.

The Edit Feedback function of the **course** software provides instructors access to students' submitted ...and practical exams) require instructors to grade them and provide feedback to students about the grade provided.

Multiple choice assessments are graded automatically by the **course** software, and instructors do not need to grade them or provide feedback.

The Edit Feedback functions can be accessed from several functions found on the... ..were answered correctly, the total score, each question asked with the student's answer and whether the answer was correct, and where in the Web **content** or **course** textbook the answer can be found. Occasionally, there may be a need for an instructor to change the grade given to the student by the system. In such an instance, the instructor preferably contacts the Mentor for the **course** to have the change made.

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Exercises and practical sections of quizzes and exams are graded manually through the Edit Feedback function. The Edit Feedback... ..access to the Edit Feedback page 125 may be obtained from

various other locations, including the Main page 72 of the Staff Interface 70, the **Course** Module List page 87, the Details page 92 for a student, the

Task List page 99, the View All Grades page 108, and the Ungraded... ..or the Percent Grade link 110 on the Module

Details screen 98 brings up the Edit Feedback page 125 for the selected student. From the **Course** Module List page 87 (Figure 26), the Edit Feedback page 125 can be accessed by first clicking the "G6" link 105 in

the desired cell... ...43

To assist instructors with grading assessments and to promote consistent grading across sections and offering institutions, the system preferably includes automated rubrics for each **course**. These rubrics allow instructors to grade their students using checkboxes, and, also provide for standard feedback to students. After checking all appropriate checkboxes for a... Upon displaying the contents of the Grader folder, the assessments waiting to be graded are displayed in a directory structure that uses the following conventions: **course** number

section

module

assessment

student-submittal number

feedback. Generally, Microsoft

Explorer is more convenient to use for grading multiple students than "My Computer". After opening... ...displayed in a

Web browser with the exercise or practical assessment followed by a table of checkboxes. The instructor must be logged into the correct **course** in order for the file to open properly. After opening the assessment of the student desired to be graded, the desktop is arranged to display... ...Staff Interface may be exited by closing

the Web browser window displaying the staff interface. This action does not log the instructor out of the **course**. To log out of the system, the Logout link in the upper right corner of the **course** pages must be clicked, or the Web browser window must be closed to log out of the **course** and destroy-the authentication.

In a preferred embodiment of a method for offering a **course** curriculum by an offering institution, the requirements for student certification by the developing or supporting institution are a minimum score of 80 or better on all exam portions in a **course**. The developing or supporting institution does not consider quiz or exercise scores for certification purposes. Any student who is working towards Certification and scores below... ...must consult with to their instructor about re-taking the exam. A student who scores below an 80% on a single exam in a prerequisite **course** but earns certification in higher level **course** will, be granted certification for the prerequisite **course**.

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For maximum student success, it is preferred that all instructors who teach the developing or supporting institution **courses** possess proficiency in both **course** subject matter and use of the developing or supporting institution Web Interface. Having demonstrated proficiency in these areas, instructor candidates will be awarded the developing or supporting institution Certification, which is granted on a **course**-by-course basis. After instructors have been certified for a **course**, they may teach that **course** at any offering

institution. Only students taking a class from an instructor certified by the developing or supporting institution will be granted access to the developing or supporting institution **course material**. Preferably, there are currently two levels of instructor certification, provisional certification and instructor certification (full certification). Instructor candidates demonstrate their readiness to teach the developing...educational experience; (ii) computing experience, including programming languages, technical work experience, Internet experience, and any other relevant skills; and (iii) teaching experience, including a syllabus, **course** location and the capacity in which the **course** was taught (instructor, teaching assistant, lab assistant, etc.) for each relevant **course**.

The instructor orientation program of the present invention preferably includes orientation sessions and exercises concerning the subject matter of the **courses** in the curriculum and or using the developing or supporting institution's Web Interface. Upon the developing or supporting institution approval, instructor candidates are given access to the appropriate **courses** on the developing or supporting institution Web site and then begin working through the **course materials**. Instructor candidates initially enrolled as students in the **courses** to provide them with the opportunity to work through the **course materials** and to experience the developing or supporting institution Web site from a student's perspective. As instructor candidates work through this process, they preferably use the developing or supporting institution Web Interface to submit all **course** assessments and to communicate frequently with the developing or supporting institution. Instructor candidates are responsible for obtaining copies of any textbooks required for a **course**. , 'Instructors who have prior experience in teaching the subject matter of a developing or supporting institution **course** preferably must complete and submit a representative set of **course** assignments, to be

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approved by the developing or supporting institution. Instructors preparing in subject areas new to them, work through all **course** assignments with the assistance of the developing or supporting institution, if necessary.

All instructor candidates preferably are required to participate in one full teacher orientation session prior to teaching a the developing or supporting institution **course**. A full session preferably entails a minimum of two half-day segments (each 4-5 hours) with approximately 3-to-4 full-days worth of **course**-specific assignments to be completed between the two days. **Course** specific assignments can be completed by the instructor on the developing or supporting institution Premises or at remote locations. A full session provides candidates and instructors with the opportunity for.

hands-on training in the developing or supporting institution **course** software and Web Interface; finding and using a variety of tools that support instructional duties; and personal and informal interaction with the developing or supporting institution **course** mentors and staff

After instructor candidates have become familiar with the student component of the Web Interface, they will be enrolled as staff members in the **course** and will be given opportunity to practice grading assessments using the developing or supporting institution tools and guidelines.

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Because the **course** software comprises a significant aspect in the success of students, instructors, and the developing or supporting institution, it is preferred for all instructors to gain proficiency in using the Web Interface for all aspects of a **course**, including submitting and uploading files, communicating via the message board, and navigating the **course**. Initial training is provided in the teacher orientation sessions, and additional, assistance is preferably provided by the developing or supporting institution as necessary to help, candidates become proficient in using the system.

To become a developing or supporting institution Certified Instructor for any **course**, all instructor candidates must: meet all requirements for the developing or supporting institution provisional certification for the specified **course**; and successfully instruct one complete offering of the specified **course**. successful **course** delivery is determined solely by the developing or supporting institution, on the basis of. student success and overall satisfaction with instructor performance; and satisfactory working relationship with the **course** mentor and other developing or supporting institution staff  
Instructors who but lack the appropriate background for teaching a **course** can still obtain developing' or supporting -institution provisional certification by completing all assignments of the **course**.

During the process of completing the assignments and mastering the **material** of the **course**, instructors preferably should contact the developing or supporting institution@s staff for assistance and support as - 51 necessary. Instructors may also attend classes taught by colleagues at offering institutions.

Students may be added or dropped from a section by sending the required info to the developing or supporting institution **course** mentor by email. The information required to add students is the **course** name, Software Systems Development 1 (e.g., SSD1), section number (e.g.

AB123), student first name, lastname, social security number and email

address (if available... ..is preferred. Upon receipt of the message, the accounts will be created in or removed from the appropriate section, and the developing or supporting institution **course** mentor will reply with a confirmation email that includes the new student's logon information.

The offering institution should preferably provide the developing or supporting institution and **course** mentor with a class meeting schedule and to ensure that email is quickly read and responded to, especially during the first week of classes.

Dropped students cannot access any section in the **course** software from which they are dropped. For this reason, instructors preferably are to use extreme care and check with the registrar of the offering institution... ..student be dropped.

In a preferred method of the present invention, all student submissions are graded with sufficient feedback on a weekly basis for

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**courses** that are fifteen weeks or longer, every three days for **courses** ten-fifteen weeks in duration, and every two days for **courses** of a shorter duration. Also, all practical exercises and practical quizzes preferably are graded with thorough feedback provided to the students at least 3 days to ensure that both the instructors and the students don't fall behind as the **course** progresses, and that, any mistakes or misunderstandings the students are having are quickly rectified.

At offering institutions, the developing or supporting institution **courses** preferably serve two purposes. One purpose is for the developing or supporting institution certification or for credit and a grade at the offering institution. The... ..80% on each exam portion (multiple choice and, practical) in a proctored setting. The exams must be given exactly as they are stated in the **course materials** and graded according to the rubrics. The scale used to provide students with a grade at any offering institution is at the discretion of the... ..assessment is at the discretion of the instructor and / or offering institution. As a guideline, the various assessments preferably should be weighted so the **course** grade reflects student effort and understanding of the **material**.

In order to promote consistent grading at all offering institutions and with all instructors, the developing or supporting institution preferably should develop and provide rubrics... ..or supporting institution also preferably checks a random sampling of all grading against the appropriate rubric to ensure consistency across all the sections of a **course**.

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Because exams are the sole criteria for determining

certification by the developing or supporting institution, policies are preferably instituted to ensure that the same... ..leave. If the Practical Exam grade of the student's record shows a "Partial", "Started", or "In progress", the student must log back on to the **course** and finish uploading and submitting the required files containing the student's exam submission.

Occasionally, students will have a legitimate excuse to miss class on a... ..event, and if the instructor and offering institution allow exams to be retaken, the instructor preferably must then contact the designated mentor for the specified **course** and discuss the matter. The developing or supporting institution mentor will then review the matter and provide a final decision on whether or not to... ..will allow students to re-take any exam for a specified fee.

All students and instructors will preferably use the Message facility functions of the **course** software all **course**-related correspondence.

The system of the present invention allows the developing or supporting institution to monitor the messages sent via the system and can thereby detect problems and concerns that arise during the **course**. In this manner, the **courses** and existing Help information can be continuously updated and improved. Thus, the usage of the **course** messaging facility allows the developing or supporting institution to support instructors at offering institutions as they support students. The developing or supporting institution preferably does... ..help instructors support their students. The Messages facility is preferably checked by the developing or supporting institution every two days for ten-to-fifteen week **courses**, daily for **courses** of a shorter duration.

Any student requiring special requirements or accommodations to complete a developing or supporting institution **course** is preferably treated according to the offering institution's policies and guidelines. A mentor from the developing or supporting institution

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preferably has experience and information concerning the accommodation of special needs students.

The mentors are preferably the primary contact and resource for the developing or supporting institution **courses** and preferably provide guidance and support to instructors as they teach the developing or supporting institution **courses**. The specific help instructors can expect from the mentors preferably includes: guidance on developing a **course** schedule, syllabus and any 'class policies; answering content questions about the **course material**; holding regular conference calls or meetings with an open agenda for instructors teaching the same class; looking into any unaddressed (inverted exclamation mark) issues; suggesting revisions to policies or

procedures of the offering institution in offering a **course** or curriculum; regularly reviewing and monitoring the Message Facility of the system to pinpoint any problems with a **course** or its **content**; randomly checking grading for consistency with the rubrics; notifying the instructors of **course content** that is particularly difficult for student; uploading **course**-specific information into an appropriate section of the developing or supporting institution Web Site; scheduling; counseling with respect to the developing or supporting institution's **course** policies; providing notification of related web pages and links to relevant resources; and other support to any issues that will help instructor master the **course material**, use the **course** software and support students.

Preferably, each mentor will have a thorough understanding of his/her role in helping the offering institution to offer the **courses**

58 developed by a developing institution or provided by a supporting institution. Each mentor will also have a thorough understanding and be well versed in... ..the Staff Interface 70 of the system of the pTsent invention. Each mentor will also have an intimate knowledge of and vast experience with the **course materials**.

Each mentor will also know how to use all the tools made available to the offering institutions in conjunction with the system of the present invention and provide support, including troubleshooting, in using the **course** software.

In a preferred embodiment of the present invention, the mentors train and conduct the certification of the instructors. The mentors follow, preferably o'ver the Internet, the instructors' progress through each **course** that the instructors are training to teach. The mentors review the prospective instructors' submissions and provide feedback as appropriate. Also, the mentors schedule time to assist each trainee with the **course materials**. The mentors understand the purpose of the different sections that can be accessed through the **course** software and make sure that the appropriate level of access is provided for each instructor or instructor trainee. Prior to the beginning of a **course** term, the mentors will provide each instructor with the specific task or tasks each instructor must complete before beginning to teach. The mentors also preferably... ..the instructors can reach the mentors in the case of problems with the system.

Mentors are also preferably responsible for providing the instructors with suggested **course** schedules, **course** syllabi, **course** outcomes, guidelines for lectures, lab session plans, self-study session plans and other recommendations for students. Mentors also preferably collect contact

information so that the... ..exclamation mark)se in case of system problems.

Preferably, the mentors will provide the instructors with support and guidance throughout the delivery period of each **course** and schedule regular conferences with, instructors, preferably by telephone or videoconferencing. Each mentor also preferably checks regularly on grading practices to ensure that each instructor's grading is done in a timely fashion and is consistent across all sections of a **course** the instructor is teaching. The mentors also review the message boards of the system of the present invention to spot student issues and concerns, particularly common issues and concerns across different sections of a given **course**. The mentors also preferably encourage the students and instructors to use the message boards, to facilitate the mentor's review thereof. The mentors also monitor the progress of the instructors and

60 students in a given **course** and whether the students and instructors are on schedule to complete the **course** in a given period of time. The mentors also preferably file regular reports with the developing or supporting institution and/or with other mentors to provide an update on the progress being made in each. **course** and on any technical issues which need to be resolved within the system.

The developing or supporting institution will preferably prescribe the minimum **course** assessments to be completed by instructors having relevant experience prior to beginning to teach any of the developing or supporting institution **courses**. Instructors who are new to the subject matter preferably must complete all assessments in a **course** prior to beginning to teach that, **course**..

Successful completion is preferably defined as achieving a minimum, grade of 80% on each assessment. Multiple attempts at taking assessments are preferably permitted, and the...

### Claims:

- 1 A method of providing at least one **course** to be offered by at least one offering institution, comprising the steps of: providing the **content** of the **course** to at least one instructor and at least one student; assigning at least one mentor to provide Support in offering the at least one **course** to the at least one offering institution.
- 2 The method of claim 1 wherein the support is selected from the group consisting of training instructors to teach the at least one **course**, certifying instructors to teach the at least one **course**, monitoring student performance, monitoring instructor performance, and responding to inquiries about the at least one **course**.
- 3 The method of claim 1 wherein one mentor provides

support to a plurality of offering institutions.

4 The method of claim. 2 wherein one mentor provides support to a plurality of offering institutions.

5 The method of claim. 1 wherein the **content** of each. **course** comprises a schedule, assignments and. assessments.

6 The method of claim. 1 wherein the at least one instructor holds class sessions to assist the at least one student in learning to perform the tasks assigned in the at least one **course**. 63 . The method of claim 6 wherein less than half of the duration of the class sessions is used by the at least one instructor to lecture.

8 A method of providing at least one **course** to be offered by at least one offering institution, comprising the steps of providing access to the **content** of the **course** maintained on a computer system to at least one instructor and at least one student; and assigning at least one mentor to provide support in offering the at least one **course** to the at least one offering institution.

9 The method of claim, 8 wherein the support is selected from the group consisting of training instructors to teach the at least one **course**, certifying instructors to teach the at least one **course**, monitoring student performance, monitoring instructor performance, and responding to inquiries about the at least one **course**.

10 The method of claim 8 wherein one mentor provides support to a plurality of offering institutions.

11 The method of claim 9 wherein. one mentor provides support to a plurality of offering institutions.

12 The method of claim 8 wherein the **content** of each **course** comprises a schedule, assignments and assessments. 64 . The method of claim 8 wherein the at least one instructor holds class sessions to assist the at least one student in learning to perform the tasks assigned in the at least one **course**.

14 The method of claim 13 wherein less than half of the duration of the class sessions is used by the at least one instructor to lecture.

15 A method of providing at least one **course** to be offered by at least one offering institution comprising the steps of maintaining the **content** of the at least one **course** on a server node; providing access to the server node to at least one instructor and at least one student via at least one client... ..institution.

16 The method of claim 15 wherein the support is selected from the group consisting of training instructors to teach the at least one **Course**, certifying instructors to teach the at least one **course**, monitoring student performance, monitoring instructor performance, and responding to inquiries about the at least one **course**. 65 . The method of claim 15 wherein the support is selected from the group consisting of training instructors to teach the at least one **course**, certifying instructors to teach the at least one **course**, monitoring student performance via the network, monitoring instructor performance via the network, and responding to inquiries about the at least one **course** via the network.

18 The method of claim 15 wherein the network is the Internet.

19 The method of claim 15 wherein one mentor provides... ..21 The method of claim 17 wherein one mentor provides support to a plurality of offering institutions.

22 The method of claim 15 wherein the **content** of each **course** comprises a schedule, assignments and assessments.

23 The method of claim 22 wherein the at least one student receives **course** assignments and takes assessments by accessing the server node via a client node. 66 . The method of claim 15 wherein each instructor holds at least one class session to assist the at least one student in learning at least one assignment of the at least one **course**.

25 The method of claim 24 wherein less than half of the duration of the at least one class session is used by the instructor...of claim 22 wherein once an assessment has been started by a student, that student cannot access any other part of the at least one **course** until that assessment has been completed.

35 The method of claim 26 wherein an instructor downloads, from the server node to a client node, the... ..the open-ended response tests.

39 The method of claim 15 wherein the at least one instructor is certified to teach the at least one **course** by a developing institution which developed the at least one **course**. 68 . The method of claim 15 wherein the at least one instructor is certified to teach the at least one **course** by a supporting institution which provides the at least one **course** to the at least one offering institution.

41 A teaching system comprising:

a network server node containing the **content** of at least one **course**; at least one instructor for teaching, at one or more offering institutions, the at least one **course** to at least one student, wherein the at least one student and the at least one instructor have access to the client server node via at least one network client node and a network; and at least one mentor to provide support, in offering the at least one **course**, to the at least one instructor and the one or more offering institutions.

42 The system of claim 41 wherein the network is the Internet.

43 The system of claim 41 wherein the **content** of each **course** comprises a schedule, assignments and assessments. 69 . The system of claim 43 wherein the at least one student receives **course** assignments and takes assessments by accessing the server via a network client node. 1

45 The system of claim 41 wherein each instructor holds at least one class session to assist the at least one student in learning at least one assignment of the at least one **course**.

46 The system of claim 45 wherein less than half of the duration of the at least one class session is used by the instructor... ..of claim 43 wherein once an assessment has been started by a student, that student cannot access any other part of the at least one **course** until that assessment has been completed.

56 The system of claim 47 wherein an instructor downloads, from the server node to a client node, the... ..the open-ended response tests.

60 The system of claim 41 wherein the at least one instructor is certified to teach the at least one **course** by a developing institution which developed the at least one **course**. - 71 . The system of claim 41 wherein the support is

selected from the group consisting of training instructors to teach the at least one **course**, certify(inverted exclamation mark)ng instructors to teach the at least one **course**, monitoring student performance via the network, monitoring instructor performance via the network, and responding to inquiries about the at least one **course** via the network.

62 A method for offering, by an offering institution, at least one **course** comprising the steps of assigning at least one instructor to teach the at least one **course**; obtaining permission for the at least one instructor and at least one student to access a network server node containing the at least one **course** via at least one network client node and a network; and receiving support in offering the at least one **course** from at least one mentor.

63 The method of claim 62 wherein the at least one mentor works for a developing institution which developed the at least one **course**.

64 The method of claim 62 wherein the support is selected from the group consisting of training instructors to teach the at least one **course**, certifying instructors to teach the at least one **course**, monitoring student performance via the network, monitoring instructor performance via the network, and responding to inquiries about the at least one **course** via the network.

65 The method of claim 62 wherein the at least one instructor holds at least one class session to assist the at least one student in learning at least one assignment of the at least one **course**.

66 The method of claim 65 wherein less than half of the duration the at least one class session is used by the at least one network server node is maintained by a supporting institution for whom the at least one mentor works.

68 The method of claim 62 wherein the **content** of the at least one **course** comprises a schedule, assignments and assessments.

69 The method of claim 68 wherein the at least one student receives **course** assignments and takes assessments by accessing the server via at least one network client node.

70 The method of claim 68 wherein each assessment is... of claim 68 wherein once an assessment

has been started by a student, that student cannot access any other part of the at least one **course** until that assessment has been completed. 74 . The method of claim 70 wherein the at least one instructor downloads, from the server node to a... tests.

83 The method of claim 63 wherein the at least one instructor is certified by the developing institution to teach the at least one **course**.

84 The method of claim 37 wherein each graded assessment includes feedback.

85 The system of claim 58 wherein each graded assessment includes feedback.

86 The method of claim 15 wherein the at least one student can access his/her grades in the at least one **course** by logging into the server node. 75 . The system of claim 41 wherein the at least one student can access his/her grades in the at least one **course** by logging into the server node.

88 The system of claim 41 wherein the at least one instructor is certified to teach the at least one **course** by a supporting institution for whom the at least one mentor works.

89 The method of claim 81 wherein each graded assessment includes feedback.

90... ..the

lo Internet.

91 The method of claim 62 wherein the at least one student can access his/her grades in the at least one **course** by logging into the server node76

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DIALOG(R)File 349: PCT FULLTEXT

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Country	Number	Kind	Date
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#### Detailed Description:

...embodiment of this invention, input filters are placed in the system. These filters allow passage of certain content, rather than a filter, which rejects **content**. These input filters might or may not be activated used in special cases, such as those in which there is exceptionally serious concern about the nature of the **content**. In another preferred embodiment of this invention, there is restricted input into one or more filters, only by pre-approved persons.

In another preferred embodiment of this invention, when the user is playing a game, **content** verification is achieved from previous game results in the current running of a game.

In another preferred embodiment of this invention, the user configures... ..level of filtering. For example, an upper tier user with controlling rights, such as a parent, wants to use Soft Toy One to pass some **material** appropriate to War Figure Two then he is able to do so. However, a lower tier user, such as a child, without controlling rights would... ..s permission, could a child use one toy to represent many others.

Filters are preferably sensitive to alerts. A server generally produces alerts after analyzing **content**, which is rejected by a filter. The actions of every filter depend upon the level of alert assigned to that filter by a server. The... ..may or may not add human intervention, or simply tighten the filters.

The system may have a remote reset capability where the server can reset the **Content** of a given user in case of trouble.

It is appreciated that Figs. 58-66 describe a toy system including a plurality of toys

having differing **content** filtration relevant characteristics and an adaptive, multi-point **content** filtering in accordance with a preferred embodiment of the present invention.

An interactive toy for teaching of languages is now described.

A preferred embodiment of...preferably able to request and download music as is preferable from a network such as the Internet in real time.

Preferably, the Toy has a **listening** functionality.

The toy preferably includes apparatus for recording of the user's speech. As described above, the toy preferably includes a microphone which is connected to the toy by a cable. The initial rate of learning defined into slow, intermediate, fast, and crash **course**, for example, to suit user.

Modify by user or parent of child user of auto-corrects - upgrades/downgrades language level and/or learning rate.

Preferably... or they can be changed automatically by the toy in response to previous interactions with the user.

It is preferable that third parties (i.e. **content** providers besides the Toy Server and the user) can create educational **content** for the toy which utilizes both the interactive nature of the toys, their personality and the fact that they are networked. Thus, for example, a... teacher, presets the initial level of complexity adjusts the complexity level of sounds, words, phrases and sentences spoken by the toy.

To enhance the language **learning** experience for the user, the toy may show pictures, typically on the computer screen or on all LCD screen attached to the toy to match... to understand idiomatic and slang uses of the language, as well as metaphors and sayings.

Optionally, the toy may surprise a user with certain educational **content**. For example if the toy "knows" via the computer that the user is interested in learning a certain language (e.g. French) then, for example...user will cause the toy to increase the level of learning complexity.

On a basic level of language learning, the toy can aid in **learning** the alphabet. For example the toy can ask the user to recite the alphabet. The toy could recite the alphabet and ask the user to... her own abilities, and will aid in the provision of a nonthreatening learning environment. Providing a non-threatening environment can be particularly important for aiding **learning** as inability to use language correctly can lead to self-consciousness, and lowered self-esteem in an individual.

To aid in the development of clear... a subject matter that is appropriate for the user, based upon the known personal details, such as age, of the user.

-i Interactive toy for **learning** a new language (eg. a foreign) language is now AI described.

Similarly and in addition to the methods and features described above for promoting native...T;nv Tii+@@+;xr@ +@,,n l@@,

When a particular user shows certain consistent inappropriate behavior, he or his guardian may purchase, or otherwise acquire, a **content** module, which is designed to "correct" user behavior. Interactive toys thus act, in a limited manner, as counselors, consultants or psychologists who use any available...another preferred embodiment of this invention, a toy vendor, together with a user, defines the initial rate of learning into slow, intermediate, fast, and crash **course**, for example, to suit user requirement to change his behavior.

In another preferred embodiment of this invention, a user upgrades/downgrades behavioral level and/or...such a system is, expected to have a large number of users. These users continuously interact with their toys and perform, as a matter of **course**, a variety of actions such as, but not limited to, requesting various items of entertainment, educational and other **content**, purchasing products and otherwise participating in commercial activities. The Networked Interactive Toy (NIT) System's database of information makes it possible to keep track of... details such as, but not limited to, age, nationality and fields of interest, and is being continuously updated on user's habits.

Thus, in the **course**- of time an enormous amount of reliable information is collected in such a system's database that can be used as **material** for research in all areas related to the system's functioning.

This unique opportunity for R and D is further enhanced by the interactivity that... used in such a system. These include, but are not limited to, credit points, discount for products, free or discounted access to entertainment or other **content** and by playing games with a user.

Thus, a networked system of interactive toys offers a unique opportunity to perform R and D in a... commercial interest such as, for example, areas related to advertising, sales and marketing.

It is further possible to perform research into areas related to the **content** provided by a networked system such as, but not limited to, research on methods of providing entertainment research as well -as research on methods of...expected to have a huge number of users, the individual test groups would also be rather large and thus make it possible to collect vast **material** for research.

An example of using such a division into test groups for the purpose of R and D is.

shown in Fig. 79. In... type of users from among the entire community of a system's users.

It is preferred that such researches are conducted as a matter of **course** in all advertising activities of a system in order to collect as much information as possible using this efficient tool. The same technique of division... ..voice types. These users continuously interact with their toys, predominantly through conversation, so that an enormous amount of information on language processing is available as **material** for research. It is - preferred that this **material** is processed in a system as a matter of **course**.

In a preferred embodiment of the present invention a system of interactive toys keeps track of any event in which a toy fails to recognize...ways such as, for example, eliminating unpreferred sensors. It is also possible to keep track of recurring hardware malfunction and thus to choose the adequate **materials** for manufacturing toys of any given type.

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The Opportunity for all these kinds of research into toy hardware can be enhanced by the unique... ..each method a system processes for a period of one or more years the school grades of and personal profiles of users who received educational **content** using the said method of teaching. In addition, a system also takes into account school grades of a test group of users with similar profiles who do not receive educational **content** in the said subject. Such research helps to determine which is the best method of teaching as well as which method are best for specific types of users. In addition, such research. makes it possible to measure the long-term contribution of educational **content** to users in comparison to other users.

Another area of R and D directly related to **content** is research into entertainment. It is preferred that a networked system keeps track of all requests for entertainment **content** as well as of the personal profiles of users who request each item of **content**. In this way a system of interactive toys offers a unique opportunity to perform reliable research into the entertainment habits of users worldwide. Results of such research may be used, for example, in order to determine the preferred types of **content** for such a system. Such results may also be highly valuable for independent **content** providers. In this case a networked system may or may not share its research results with establishments that specialize in the creation of entertainment **content**.

This opportunity to perform entertainment research is greatly enhanced by a networked system's ability to collect information on the context and environmental conditions in which entertainment **content** is requested for. In a preferred embodiment of the present invention a networked system of interactive toys sends **content** to web television upon user request. The system keeps track not only of all requests for TV programs and users profiles but also of the... ..includes details such as, for example, whether a program is watched alone or with friends. It is preferred that such information is collected in the **course** of a free interaction between a 'toy and one or more users. Fig. 84 shows example of such an interaction.

Since many of the... ..a child-user as a function of many parameters. These parameters

include, but are not limited to, type of interactive games with a  
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toy, **educational** and entertainment **content** requested from a system, other games played by a child, results of informal tests embedded in games, and personal profile details such as, for example, parent level of **education** and income. It is preferred that such information is collected over a number of years that cover a phase of a child's development such... ..activity they are engaged in. It is also preferred that a system keep track of matters of nutrition and health that are mentioned in the **course** of a conversation between a user and a toy. In a preferred embodiment of the present invention users are especially encouraged to lend information about... ..conversation is shown in Fig. 85. - Such interaction makes it possible to perform research that takes into account drivers' expectations and decisions made in the **course** of a ride.

In a preferred embodiment of the present invention, a system of networked interactive toys are used to obtain information from users which... ..Toy system offers a unique opportunity to record and track all actions, a selection of actions or a summary of actions of all users, toys, **content** providers and commercial establishments which use the system. The resulting database of information is preferable for the proper operation of a system of interactive toys...preferred that a database include's for each toy its own record of "life history". This would enable the system to keep track of interactions **between** any particular user and any number of toys, and also **between** a particular toy and any number of users in the system.

Another section of a database on a server - the community records - includes first of all a **content** database in which the system stores contents it provides to its users. It is preferred, however, that **content** providers should also be connected to the system and provide **content** to the users under control of a system's server. In this case, a **content** database would include records of the various providers of **content**.

Due to the tremendous commercial applications of a networked system as such and of its option of data storage in particular, it is highly desirable... ..below.

It is preferred that apart from records of individual users, a database includes a central record of all users' habits. As this record is -**updated** in the **course** of time, it would enable to enhance research and development (R and D) issues as well as commercial applications that are not immediately related to... ..No Etc. Etc. Etc.

Similarly, one may record other types of events that occur within a toy-to-user interaction, such as, for example, entertainment **content** being requested by the user. A record of this type of event may include information about the time of occurrence, the type of entertainment **content**, and about whether the entertainment session was allowed to continue. In case of a request for educational **content**, a toy may present questions to its user, and on the basis of the user's response the system can determine whether he/she has understood the nature of the **content** concerned. This information can then be added to a record of requests for **educational content**.

Information concerning particular events can be collected over any period of time and then processed in various ways. Fig. 88 shows schematically an example of a procedure for handling information, concerning coupons, which has been collected in the **course** of a relatively short period of time (two weeks in the given example). When a coupon is given to a -user the system checks, after... ..of a particular user collected over a long period of time: for example, the total number of coupons for hamburger given and used in the **course** of a year. The second input may come from a parallel selection from records of events from the entire community of users. It is possible... ..also preferred, especially but not exclusively in case the user is a child, that a record of personal details includes information about the type of **content** that is allowed to be sent to the user's toy. This would reduce the chances of inappropriate **content** and thus enhance the security in the system. Through analysis of users' records of events as described above (Fig. 89) the system may collect in the **course** of time a considerable amount of information concerning the habits of any one, of its users. This information is to be stored in a record... ..as well as all the basic information about the toy such as its basic personality traits as well as a record of allowed and disallowed **content** as dictated either by the toy's manufacturer, by the user or by any other authorized party. It may be possible to update this record...the user. Thus the same toy with different life histories may have different personalities. Thus the life history database contributes to the individuality of toys.

#### **Content** database.

A **content** database contains among other things, entertaininefit, educational, and other **content** either in the form of scripts or in the form of other interactive routines that are provided to users by the system@s server.

As mentioned above, it is preferred that **content** would be sent to users from **content** providers as well, and that a server may control the passage of **content** from a **content** provider to a user. If this preferred option is realized, a **content** database should include records of all **content** providers connected to the system. A record of **content** provider might include details of the types of the various items of **content** it provides, requests for **content** by users and users' response to **content**.

As users' response is collected over time it could be used to **update** the details of **content** type as initially declared by the **content** provider. A possible structure of a **content** database is schematically shown in Fig. 94.

#### Commercial database.

Commercial applications are central to part played by data storage in a networked interactive toy system... ..for Interactive Toys".

Besides the security risks inherent in all networked computer systems the toy system should also be concerned with the passage of inappropriate **content** to users and with the

possibility that users or other people may be able to hahn the system through a judicious choice of interaction with... ..toys. In the aforementioned application, this danger is handled b the use of filters and security units that control, at various points, the flow of **content** to -users beginning from whatever source this **content** might be provided and all the way to the final user.

The functioning of such a security system is enhanced if information about security events is available. A database of security events stores information on all security violations that have occurred, including a list of **content** providers involved in sending inappropriate **content**. It may also include information about users with whom greater caution is preferred.

An example of how a security system might work with inforination from... ..96. A security unit, namely a computer located at a system's server, receives, in this example, four types of information. Firstly, information about the **content** allowed to be sent to a particular toy stored in that toy's record of life history.

Secondly, information about the **content** requirements of a user, supplied from that user record of information. Thirdly, information about the **content** possibly arriving from a **content** provider and therefore stored in the record of that **content** provider in a commercial database. And fourthly, information about security events stored in that special database.

This last type of information improves the functioning of...Commerce is a process by which a consumer, preferably a child, uses a toy to buy something. The object bought may be a physical product, **content**, service, etc. that will be collectively named herein "the goods". There are several reasons -that make T-Commerce billing considerably different from any other billing... ..buying occurs when the child knows that he or she is buying something. This will always be true for physical goods. However, in some cases, **content** can be purchased unintentionally. For example.

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. The parent purchased for the child a weather report each morning.

2. The child is allowed ten jokes... ..in

most cases forward the source vendor its share of the revenues-,

5. The operator provides the communication infrastructure;

6. The advertiser provides user oriented **content** with advertising payload. Receives advertising fee And/or commission on the transaction;

7. The affiliate web site that referenced the buyer to the retailer. Receives... ..a controlling computer 1130. The' contr olling computer communicates, via a public network 1140 (e.g. the Internet) with the billing service 1150, online stores, **content** providers and services I 1 60 and with affiliate sites I 1 70. When out of home the -user can still access the billing services...

## Claims:

A toy system comprising:

a plurality of toys, at least some of which have differing **content** filtering relevant characteristics, said plurality of toys being adapted for communication along a computer network; at least one **content** communication filter cooperating with at least some of said plurality of toys and being operative to govern the **content** of at least part of said communication of said plurality of toys along said computer network, said at least one **content** communication filter applying at least one **content** filtration criterion which is at least partially a function of at least one of said differing **content** filtering relevant characteristics.

2 A toy system according to claim I and wherein said at least one **content** communication filter governs the **content** received by at least one of said plurality of toys along said computer network.

3 @ A toy system according to claim I and wherein said at least one **content** communication filter governs the **content** transmitted by at least one of said plurality of toys along said computer network.

756. A toy system according to claim I and wherein said at least one **content** communication filter comprises a plurality of **content** communication filters, each cooperating with at least one said plurality of toys.

5 A toy system according to claim I and wherein said at least one **content** communication filter applies at least one **content** filtration criterion which is at least partially a function of dynamic **content** characteristics.

6 A toy system according to claim I and wherein said at least one **content** communication filter applies at least one **content** filtration criterion which is at least partially determined by an operator of at least part of the system.

7 A toy system according to claim I and wherein said at least one **content** communication filter applies at least one **content** filtration criterion which is at least partially determined in an interactive manner.

8 A toy system according to claim I and wherein said at least one **content** communication filter is operative to filter **content** relating to toy speech.

9 A toy system according to claim I and wherein said at least one **content** communication filter is operative to filter **content** relating to physical actions of a toy.

10 A toy system according to claim I and wherein said at least one **content** filtration criterion is at least partially a function of the geographical location of the toy. II. A toy system according to claim I and wherein said at least one **content** filtration criterion is at least partially a function of the cultural milieu in which the toy is resident.

12 A toy system according to claim, 1 and wherein said at least one **content** filtration criterion is at least partially a function of at least **content** filtering relevant characteristics

of a transmitting toy transmitting said **content** and of at least one receiving toy, receiving said **content**.

757. A toy system according to claim I and wherein said at least one **content** filtration criterion is at least partially a function of at least one characteristic of a user of the at least one receiving toy, receiving said **content**.

14 A toy system according to claim I and wherein said at least one **content** filtration criterion is at least partially a function of at least one characteristic of a user of a transmitting toy, transmitting said **content**. 15.. A toy system according to claim I and wherein said at least one **content** filtration criterion is at least partially a function of at least one characteristic both of a user of the at least one receiving toy, receiving said **content** and of a user of at least one

. 9transmitting toy, transmitting said **content**.

16 A toy system according to claim I and wherein said **content** bears a digital signature confirming its origin.

17 A toy system comprising:

a plurality of toys, at least some of which have local databases associated ...said talking object and connected to a digital port of said computer and operative to convert digital signals output from said digital port into analog **audio** signals and to transmit said analog signals via said cable to said talking object for output via a speaker associated with said talking object, thereby to imbue said talking object with a capacity to emit **audio** output.

35 A system according to claim 34 wherein said analog signals comprise speech signals and said **audio** output comprises spoken messages.

36 A system according to claim 34 wherein said analog signals are transmitted via cable from the interface circuitry to the...

**Dialog eLink:** [Order File History](#)

7/K/60 (Item 22 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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### Detailed Description:

...control in any and all such man and machine shared control scenarios. Automobiles and highway travel and its safety will be a major focus of **course**, but this technology is planned to provide this secured trusted analytical data tool for every mechanized, automated and/or remote controlled insurable action and/or digital signals and/or any and

all data streams, encoded and/or encrypted signals including; all data, **audio** and video signals as well as telemetry for man and machine operation and environmental monitoring, along with any other application specific data streams determined as...on each and every piece of equipment. The individual chips in each component or device identifies the component to be recognized by the National registry **after** the initial data is processed by the PFN

#### TRAC

FACT computer programming when it is connected to the uni-buss either in the protected containment...a pager is interfaced switch communication use to the pager system to receive signal for an authorized remote command. Even a standard car radio or **audio** system interfaced through the PFN will be able to receive one-way communications to perform PASS, Proprietary Aggressive Slow Stop, and Securing of a piece...aggressive remote and automated function.

The signal or paging command is received securely via encryption) and decoded by the TRAC.

Optionally, a local display or **audio** speaker may provide local status of the TRAC function being executed, with appropriate progress tones, voice queues or displays to provide a local operator feedback... ..and executed, but important for evaluation and determination of liability, collection of evidence or environmental data. Examples of these include road condition information or surveillance **audio** and/or video.

IMPLEMENTATION TRAC implementation may be accomplished in many ways, depending on space or funding constraints and level of integration required for the...sequencer, firmware, I/O and storage functions on a single device and would provide the highest level of integration and smallest size. Display, Video and **Audio** (Auxiliary Data) for the TRAC can be in many forms and types. These may range from analog systems, in which tape or other magnetic media... ..RAM. Data format may be modulated through FM or AM, compressed, packetized or otherwise encoded for reduced bandwidth or for transmission over the Internet (packet **audio** and video). And even modulated over power connectors to save space and individual **material** component use.

This block diagram shows the PFN/TRAC systems interface of green vehicle controls and sensors on the left of the red TRAC module...will be for any single PFN and/or the peripheral system.

202 is the inner wall which can and will be constructed of various different **materials** as already named in the last outer wall description- if so determined necessary by application specific criterion-for any specific PFN application. It may as well be constructed of hardened steel thermally tempered to increase carbon **content** in the molecular bonds or a metal alloy composite product may be utilized with, titanium, tungsten depleted uranium etc.(this is the same for all... ..There are also recommended protective handling specifications put out by the federal government and industry for the best modalities to deal with and handle hazardous **materials** e. g radioactive, chemical, bio and medical waste, EMFs high electrical currents, etc. All the **materials** used and the

manner in which they are used will be developed for the PFN prototype construction with full consideration and compliance with these recommendations...total secured piece of equipment if -so desired. But only by authorized and authenticated entry if this is a feature or capability so desired. Of **course** any portion of these electrical components can be given this same plug and play capability if so desired. Because this Protected PFN TRAC system & structure...at any quality desired. It also has an electrical connection to be use in arming the device. 2AO2 is the memory storage in this case **audio** recordings and a flash memory of operational data (Sony's memory stick 8 megabytes a piece). 2AO3 is using a stamp processor as the controller...current with the more sophisticated cards, as well as evolve with other recognition systems e.g. finger print and voice and pupil identification systems. Of **course** the data retrieved from these magnetic cards can be recorded on board in the billing PFN as well as transmitted back to any network gate...section or a part of the center section be open to the cabin during operation as this is the protected black box storage area. Of **course** these configurations are flexible and the designs can vary greatly, but when a permanent area is chosen it has to remain inaccessible till the proper...enter into the protected containment to reach the standard COTS antennas e.g.

patch type, but also provide protection from heat and fire. And of **course** these port holes would be located in hard to reach areas.

The bottom box illustrated in figure 2D is showing the lock access panel doors... ...a ribbon connector can provide connect-ability to any and all necessary switches for manual electronic controls as a compliment to verbal commands to control **audio** sound levels atmospheric temperature augmentation lighting and/or driver assist systems to greater enhance safety juxury and security. This aesthetic dash front may be constructed...devices or components will have a hand shake and/ or identity check and the PFN computer will request the operator through any available display or **audio** verbal commands to install any installation software disks in the appropriate drives to create the appropriate drivers. At this same time the operator may be...The software or embedded firmware for the government is handled strictly and provided through the government for their high security applications. This invention would of **course** be capable of employing this DES security system protocol on all of its one or two-way transn-dssions between devices, e.g., PFNs TRAC...this two-way PFN will completely support all of these functions including any special sensors, e.g. GPS or locating equipment, identification systems environmental sensors, **audio** video systems, all machine controls and will monitor all machine sensors. 301 memory storage are shown here as a plurality of local memory. One a current running loop of application specific determined length and **content**. And the other local memory a application specific incident based or event storage. This second data storage is permanent and housed in a protected area...and varied to improve security and safety for all facets of remote control protocols. To help world order and nation building by monitoring equipment and **material** movement, while robotically controlling terrain and police an area for aggression, without risking mediating personnel any more than is absolutely necessary. (To help enforce treaties... ...the same dotted line with the non emotional objective cold hard steel equipment that stands fast to the terms that have been agreed uponOnce again, **audio** recordings would

be in a native language which can be remotely sent as precursors to any physical intervention. First as a persuasive protocol, e.g... ..peace accord). These PFN armored machines and/or equipment would be all terrain like tanks, track vehicles, hum Vs wheeled vehicles, hovercrafts, etc. And of **course** their peripherals could be all of the same and more in the military weapons categories. Eventually special peace keeping PFN controlled equipment would be created...remote location coordinating the air crafts actions and sensing its environment and the air ports position and condition and provide the best glide path or **course** of action in real time aggressive controls e.g the auto pilot controls for any inexperience or compromised pilot through to safely land any aircraft...with the proper DET data encrypted terminal as part of the land line connection or a one-way PIN out fitted with DES chips. Of **course** the same would be true for secure commercial applications as well with PGP protocols. ( this is for the high security applications)(non sensitive systems would...as part of the protected interface and accountable data storage components rather than this proprietary pager technology and parallax mini computer if so desired. Of **course** the TRAC protocol would be programmed into the Motorola software or firruware to authorize software commands, authenticate remote control activity and store it in the...and simple processors to prove feasibility and the digital systems will accompany the more sophisticated minicomputers and special TRAC programming. This can lower video and **audio** cost for these applications but, will be more costly in the processor system in the beginning. These first video systems'Will. document cabin activities and...always maintained in this technology the PFN has been created as an accountable organizational interface for all a host piece of equipment's electrical devices, **audio** sound, video, recording, memory storage processors, computers and communication systems. The PFN TRAC system can support on and off board security control and management for...and scope and operated in an open fashion of data acquisition or also encrypted to protect personal data to only the authorized personnel.

And of **course** any of the two-Way pagers can be sent messages, which will activate preprogrammed responses as is the case with one-way paging. This is...phone tones to connect to a phone node if so desired and deliver direct communication from the computer to any hardwired monitoring center. And of **course** if land line connections are available for HS and MS security they will have the necessary sending and receiving equipment and TRAUFAC and/or CEW software systems and programs to handle the encrypted signal. Of **course** the same would be true for secure commercial applications as well with PGP program protocols running as part of these application specific software programs to...on figures 9 and 10. However, the allocated and dedicated frequencies are designated and many of them are shown on the allocation chart. These of **course** would be the ones used for the Government and other high level security protocols however as has been stated the pager and wireless phones can...light transmission equipment.

#### FIGURE 6

Shows a system that can support the most sophisticated high security and two-way communication capability for full real time **audio** video with either cellular or digital phone or any other comparable radio frequency equipment specially delegated for. these purposes (either Military controlled and/or

operated...gas , water cannons , pepper spray, tazzor gun, net mortars, rubber bullets and convention automated machine gun, cannon and explosives for the extreme security scenarios. Of **course** the host platform will dictate some of the conditions and restrictions to support any of these devices as well as any real need for any...be initiated form any where in the world with the correct encrypted secure codes held by the responsible authorities. These TRAC /FACT/DES systems of **course** would have special considerations and guidelines set up for governmental and national security agencies, as well as, world organizations involved many of the most extreme... ...in these high security environments would be greatly enhanced and response time to any event or emergency would be almost immediate with accurate data and **audio** and video records on exactly what transpired to analyze and remedy any same negative situation in the future and/or to prosecute any impropriety that...trams or car trains which is the energy efficient individually private mass transit option for land based personal vehicle platforms in long distance travel. Of **course** the infrared comports that have been extensively detailed in the other related applications and/or any of the light transmissions and/or RF signal transceivers... ...security control encrypted Commands to allow the proper authorities to control any and all equipment, machinery, and vehicles in a state of emergency. This, of **course**, will be determined by the public and its governing ...developed for the trucking industry by companies Eke; LA Guard and Prince, Highway Masters, now part Johnson Controls and the GM Onstar System. And of **course** these COTS products will be easily accommodated and be enhanced in the protected and accountable interface with all the signal security (DES and PGP)in... ...one system that will be utilized in the security PFN prototypes and is mentioned here and will be totally detailed in the formal application. Of **course** in the DES security mode the modem section will have to be modified to accommodate the DES chip set. or this function of encryption will...computers as mentioned above and incorporated herein by reference. One important note is that any and all PFNs can be outfitted with GPS and of **course** the most sophisticated can provide hot accurate readings and give positions with the military GPS with in centimeters with their additional ground signal that in... ...has great value to provide vital data for accurate evidence as-a primary goal of the accountable protected primary focal node. It provides accurate geographic **audio** and visuals, as well as, environmental telemetry to assess any aggressive personnel, ordinance, and hazards that might be present and in control In a rescue... ...a lost security area. The pinpoint data reported from the PFNs will provide an important tool to evaluate a hostile situation and determine the best **course** of action. And as earlier stated the PFN s can help wage an aggressive war, when and if that choice is unavoidable. Or bring a...and robotics in any scenario. And above all the PFN

#### TRAC

FACT system gives structure to write Standards to: (laws, rules regulations and code) for **materials**, interfaces, procedural use and/or protocols to perform accountable responsible remote control and robotics by focusing communication, control circuits, locating equipment for time and geographic...are DES specially isolated.

606 is the physical recovery of on board data as has been described thoroughly in figures four and five and of **course** this more sophisticated communication PFN has the off board data storage in the monitoring and control system, which is limitless in the dial up services...any and all components fully accountable for their actions in remote and

automated control scenarios but also their impact on others and the environment. Of **course** the proper rules regulations and law must be constructed for this accountability tool and it must meet the real-life test of fairness to all...is an ideal way to usher in the shared control scenarios of man and machine in the future in a sane and fair manner. Of **course** the use and the laws governing any abuse will be determined by the people and their duly elected governing bodies and appropriate government agencies police...  
...control and witness altercations and disputes to provide fair and correct review and accountability for the events and actions taken. And this invention could of **course** be coupled with world organizations and all involved nations to determine application and use whenever ...a control signal which is a modulated digital signal sent out on the power lead to individual activity controls, sensors, operator telemetry and to handle **Audio** and video digital signals., The super modem 6A(UTU) is a universal transposing unit and will be able to handle analog to digital conversion, digital...to monitor exhaust gasses, toxins and/or pollutants. They can be used to activate vales as primary or secondary backups to hardware systems.

And of **course** any hardwiring system would greatly benefit by the secure containment and multiple accountable data storage. The smoke stack applications for PFN monitoring are only suggested...them up from their places of origin. There is a PFN on the fork lift or any support equipment that would be handling the hazardous **materials** from the transport trucks or rail cars or ships or planes. These pieces of equipment will have what ever sensor array that is application specific... ..will represent a level of RADS on the Rankin scale that can be associated with safe levels, dangerous and harmful levels. These levels will of **course** be established by the appropriate government authorities, e.g., Department of Energy or EPA National.

Special sensors Like the "NOSE" that can sniff, smell detect... ..chaos without invading the normal citizens movements and maintaining professional courtesy and respect. for the individual while increasing security awareness for the real threats. Of **course** all the metal detectors, phlorescopes, MRIS and/or x-ray scanner technologies can be employed and supported by the PFN proprietary computers and video cards...installations to banking operations armored vehicle tracking and travel path with time and place records in three places in real time along with real time **audio**, video monitoring of the entire operation. 803 is a satellite that could in some high security government protocols be solely operated by the military and... ..and these installations can be operated by governments and/or corporations and represent the chemical industry, medical field, fuel oil and gas industry and of **course** the nuclear industry as depicted by the figure 7. 300 w on the globe represents that the monitoring and remote control network can be set...slow, stop and secure sequence. The signal or paging command is received securely (via encryption) and decoded by the TRAC. Optionally, a local display or **audio** speaker may provide local status of the TRAC function being executed, with appropriate progress tones, voice queues or displays to provide a local operator feedback...and executed, but important for evaluation and determination of liability, collection of evidence or environmental data. Examples of these include road condition information or surveillance **audio** and/or video.

## IMPLEMENTATION

TRAC implementation may be accomplished in many ways, depending on space or funding constraints and level of integration required for the... ..sequencer, firmware, I/O and storage functions on a single device and would provide the highest level of integration and smallest size. Display, Video and **Audio** (Auxiliary Data) for the TRAC can be in many forms and types. These may range from analog systems, in which tape or other magnetic media or AM, compressed, packetized or otherwise encoded for reduced bandwidth or for transmission over the Internet (packet **audio** and video).

#### FIGURE 11

This figure of TRAC is a more detailed description of this technology's proprietary programs interfaced in the programmable and modular...well detailed in the related applications for this technology's proprietary "Spider Eyes program" or for any smart car and/or interactive highway programs. Of **course**, law has to be legislated and rules and regulations made and well understood as to the manner of engagement and the procedures to use these...conflict.

The PFN TRAC system can be given a progressive array of tools to help safe guard any agreed upon peace. This technology can give **audio** instructions in the appropriate language and repeat or site the agreed upon terms when they are violated. This accomplished by the monitoring of improprieties with... ..and secure the vehicle. And the secondary modality of the this proprietary automated shut down PAGSSS-proprietary automated-guide, slow stop and secure. This of **course** can in part be accomplished through remote control if so desired. M-ASMP stands for mobile @!pplication @pecific management program. This is any number of...booths, toll transponders or fuel tax, etc. These functions can be accurately and quickly tabulated electronically through the PFN/TRAC monitoring and management system. Of **course**, there are many other uses for the electronic payment feature including, evaluating alternative energy vehicle use and impact. This local system keeps a record on...to make these emerging systems better for all society. It can provide for fair revenue practices and assessing at the same time through accounting for **material** use and waste products with the operation of all humanities equipment and technology. And without any doubt the timing is correct to create this type...etc.

On page 18 of the Directory listed half way down the page the Federal Department Of Transportation has all its divisions listed and of **course** these too would be responsible for the gathering of Data in their traditional way as well as through the inventions (PFN) data transmissions, especially in... ..software to support their representation on the web account pages so they can account to the public for their existence and their activities. And of **course** the Justice Department starting on page 15 along with all the earlier mentioned FBI programs in related patents incorporated herein by reference would be an... ..Antonio Police Department, etc. as well as supplied direct FBI regional and national Data for all 4 levels of the web account page) And of **course** this is a main objective in providing these web account pages to the general public. If the individual is going to be ask to share...and representative lawyers with the protected PFN evidence equally presented to both conflicting parties during the discovery process prior to any civil legal proceedings. Of **course** this is a section and set of procedures that will be

appropriately legislated for the PFN by dually elected government bodies in a constitutional manner...readings which when run through their software diagnostic programs and/or those programs owned by the factory would limit the repair choices and suggest the **materials** needed to effect an appropriate repair prior to arriving on the job.

This would be a great time saver and money saver. Also personal calls could be routed to the operator without them having to leave their machine or work station to answer them.

In the **material** handling industry many robotic order picking systems already exist and converting them to collect emissions data toxic fluid loss as well as gather performance data...to a local cell so that law enforcement can activate cameras and appraise an area in which they have just received an incident reported. Of **course** all these protocols have to be approved by the public and decide on how the billing will be assigned and credited and the priority of...be freely posted. Some of this can be accomplished rapidly but corporate law , national security will have to continually participate in this process. And of **course** some data will just be considered to sensitive. The TRAOFACt programs will allow the national registry to check any and all operating hardware and PFNs...was incurred. There should be no existing copies once the citizen has been returned their data and the data should be destroyed. (this is of **course** only a hypothetical protocol. And legislation would have to be drafted to be constitutional and fair to all parties involved.

Of **course** the software programs would be structured to insure this legal structure and at this time it FIGURE 14C This figure is a description sheet-of... ..time including the real-time impacts and progression of these investment activities.

The folder presented to the WB and the IMF are copies of the **materials**, that are being presented to the Federal Communication Commission and the Department of Transportation in the United States. I

Additionally, we are applying for funding...report is the third phase and it will involve informIDg the IDEA program, the appropriate agencies, standards organizations and any other funding organizations and of **course** other sponsors.

This three phase approach is designed to efficiently bring the PFN/TRAC System from research to commercial and social viability through it's...components that could be used to activate explosives, chemical, or bacterial or viral microbes contaminants) through the commercial (PFN) remote and management control systems. Of **course** the appropriate authorities would be alerted to any of the national security high risk installation attempts in real Btime. The immediate action could be performed... ..can be ID by its FACT chip along with all its Original Equipment Manufacture OEMs firmware (Lot No. and any security codes, etc.) and of **course** this would be **updated** by any additional or subsequent use such as re-sales, retrofits or re-installments.

An accurate record shall be provided with in the chips firm...the more extensive amount of data handled by smart cards and chips this is another inexpensive modality that will help in tracking and reporting stolen **materials**. A hard or plastic card would be issued to

the purchaser of any TRACS/FACT device so that they could scan their stolen property data...improvement fall within the nature and scope of this invention to provide accountable remote and automated control for society and its institutions. TRAC is of **course** the Trusted Remote Activity Controller a modular based software program of which FACT the Federal Access and control Technology is an intricate part. These programs...local nodes for related activities and data to help structure efficient data communications for all the government agencies and commercial services. The Actual structure of **course** will be part of a large standards effort and civil legislative effort.

Total purpose goal: This is the base system to create a national directory...have to face their own actions in the proper legal settings. And basically there will be no use or miss - use of stolen property. Of **course**, this can be done for resources and all things needing monitoring to insure any fair deal is lived up to and/or is humanly reasonable...g. ESN, and/or MIN and production Identification and seventh layer application security instructions from the ISO OSI networking Model. If for example a stolen **audio** or sound unit is connected to the uni-buss of a vehicle. The PWcomputer will signal or request information from the individual FACT chip in...proper government agencies are also listed but all government agencies could access and create data as could even the general citizenry for total accountability. of **course** specific data on individuals would not be obtainable or used unless authorized by the individual or as the result of some legal action as is...can not be identified or compromised in life the pocket and the pursuit of happiness. The exceptions to this rule is that if through the **course** of operation a piece of machinery they endanger others (public Safety) then the proper authorities and commercial insurance agencies can access these personal records. However... ..through the National Registry and be responsible for its dissemination worldwide. This is why the big black triangle ends up with National Government Agencies. Of **course** any data request generated by state and local agencies or pertaining to same agencies will be notified and enjoy all the same rights constitutionally guaranteed...if it is an emergency (public safety or National Security scenario it might require another type of aggressive remote and automated control options. And of **course** if the first box above is processing the normal commercial registry of products and product information the normal install sequence would access this data and...line and shadow services the driver interface area including displays, alerts, the instrument panel, and provides sensing for the driver performing steering, braking and acceleration. **Audio** and video as well as other sensor arrays are additional possibilities and detailed through out the related patent applications.

All carry on electronic devices e...both physically and legally.

Human Machine Interfacing (HMI) presently is Brain Dead

A human can either be a good or bad driver; and during the **course** of a lifetime any driver will experience varying degrees of both at any particular point in time. Driver skill is greatly dependent on mood, health, use of drugs, driver training and other factors. During the **course** of our driving careers, we are all likely to be distracted from our primary responsibility to drive to the best of our ability. Our driving...the data being optionally two-way transmission for memory storage recording of remote control commands, the recording signal from at least one of operation sensor, **audio** data records

and visual data records, said at least one communication device comprising at least one of.

a two-way pager responsively connectable via at... ..remote monitoring system for at least one of billing, debiting and crediting;  
at least one processor and computer responsively connectable to at least one of **audio** and video devices and other communication systems to at least one of guide and control remotely a vehicle;  
at least one processor and computer responsively connectable to at least one memory to record at least one of an **audio** and video signal, and data used to control a vehicle remotely;  
and  
at least one two-way communication system including at least one security device...

**Dialog eLink:** Order File History  
7/K/61 (Item 23 from file: 349)  
DIALOG(R)File 349: PCT FULLTEXT  
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	Country	Number	Kind	Date
Patent				19

### Detailed Description:

...process for financing or settling an account according to one embodiment of the present invention;  
Figure 80 illustrates a process for procuring information during the **course** of a transaction in accordance with an embodiment of the present invention;  
Figure 81 is an illustration of the hitegrated Development Environment Architecture (IDEA); Figure...the eCommerce Application Framework;;  
Figure 98 illustrates a simple personalization process;  
Figure 99 is a graphical depiction of extents of personalization;  
Figure 100 illustrates a **content** catalog that can be used to manage an enterprise's **content**; Figure 101 illustrates an exemplary template with three Dynamic **Content** Areas (DCAs) embedded within the template in accordance with a method of associating a rule and **content** to an interaction;  
Figure 102 depicts a ShARE (Selection, Acquisition, Retention, and Extension) customer relationship model which addresses the changes in a shift to interactive...Another technology that provides similar function to JAVA is provided by Microsoft and ActiveX

Technologies, to give developers and Web designers wherewithal to build dynamic **content** for the Internet and personal computers. ActiveX includes tools for developing animation, 3-D virtual reality, video and other multimedia **content**. The tools use Internet standards, work on multiple platforms, and are being supported by over 100 companies. The group's building blocks are called ActiveX...to sign its message before sending them and to

validate its signature

Encryption/decryption of on-line transaction: allow the sender to encrypt the messages

he wants to send in order to keep its **content** secret

Authentication: confirming the identity of parties involved in the transaction Firewall and

network security: establishing a barrier between the Wide corporate network (secure network... ..network). Only Wide Members is granted access from outside based on user names and passwords, Internet IP

address, or domain name

Integrity.

\* confirmation that the **content** of a message has not been altered

Non-repudiation.

\* the signer cannot deny the signing of the message

Confidentiality.

relevant information is kept secret, only...needs in commoditized products"

The three emerging online marketplaces serve the basic functions of bringing buyers and sellers together online to easily exchange value, provide **content**, and form a community.

As shown in Figure 54, these three marketplaces may be brought together to create an eMarketplace 5400.

eMarketplaces can target either vertical market segments or horizontal market needs.

Vertical

Description

Provide deep industry-specific **content**

Provide domain-specific relationships and contacts

Community focus oriented

Characteristics

- o Usually founded or backed by experienced industry personnel

- o Usually found in inefficient supply...solutions 5600, IT 5602, fulfillment 5604, and financial services/risk management 5606.

In addition to having attractive forms of exchange, electronic exchanges must also provide **content** and support the creation of communities.

**Content** includes developing information which allows users to develop a strong understanding of what they're trading and with whom. Examples include historical price/volume data...information. Reference numerals 1-5 set forth the order of the

operations of the process.

Figure 80 illustrates a process for procuring information during the **course** of a transaction in accordance with an embodiment of the present invention. Reference numerals 1-4 set forth the order of the operations of the...s responsibility to ensure consistency across all these formats.

The responsibilities of the Information Management team therefore cover.

Repository. Management

\* Folder Management

Object Management

Media **Content** Management

Information and data reuse coordination

In addition to managing the information for the System Building team, the Information Management team must also manage the...Reviewing designs

Packaging classes and components for reuse

Managing maintenance and upgrades of common components (a strong relationship with Configuration Management team is required)

Media **Content** Managem

The methods of handling media **content** are somewhat different from those surrounding more traditional development **content** such as code or documentation, for this reason, a role should be defined that is responsible for the management of all media **content**.

Quality Management

The Quality team is responsible for defining and implementing the Quality Management Approach, which means defining what Quality means for the Program

Leadership...structure and responsibilities.

As systems become more user-facing, important new roles are emerging that must be integrated into the Application Development teams.

a) Media **Content** Design

For any system with a user-facing component, it is extremely important that media and design specialists are involved as team members at an... ...creative and attractive user interfaces, but also reduces the risk of further alteration to work at a later stage.

b) Usability

Often coupled with Media **Content** Design, it is vital that a role for usability is defined within the Application Development teams. This will ensure the usability of the system from...A vast amount of information is generated within the development envirom-nent, which needs to be carefully managed (for example, design documentation, application code, media **content**, test plans and test data). Information Management generally involves Repository Management, Folder Management and, where applicable, Object Management and Media **Content** Management.

Since a number of teams rely on the service provided by the information management team, it is important that the level of service to...distributed over different locations. In order to keep these repositories synchronized, well defined development processes must be implemented.

Repository Management can be divided into the **following** areas.

Security

9 Maintenance

Validation and mass change

Analysis, reporting, and querying

Security

Restricted access to various repository object types is necessary to ensure high quality repository **content**, because developers sometimes take shortcuts and make unauthorized changes to meet their deadlines. When standards have been set, a good way to enforce them is...folder and the kinds of contents it should hold.

\* Perform regular clean-up, by backing up redundant or misplaced files and then removing them.

Media **Content** Management (8106)

The unique nature of media **content** means that it cannot be treated in the same way as 'standard' formats, such as source code or design documentation. The major differentiating factors are... ..e. it is not easy to 'look into' a media file and understand its contents).

For this reason, some of the processes that support multimedia **content** management must be handled differently.

The three major processes that are required to support media **content** management are.

Storage management

\* Metadata management

Version control

Storage Management

Storage management concerns the methods of storing and retrieving media **content**. The cost of data storage may be decreasing, but it is still the case that for large volumes of media it is often uneconomical to... ..on shelves)

Metadata Management

Data about the media that is being stored is an important commodity that must be managed. As the volume of media **content** grows, it is vital to be able to understand characteristics of the media, in order to be able to manage it correctly. Examples of metadata include.

9 Media type (for example, MPEG video, JPEG image)

Media settings (for example, sample rate, resolution, compression attributes)

Usage details (which module uses the **content**)

Media source (for example, Source, author, creation date)

Legal information (for example, whether the media is copyrighted)

Version Control

As with standard development code, when media **content** is created and edited, a revision history of changes should be retained. This way, if it is necessary to revert to an original piece of media **content**, it is not necessary to go all the way back to the original source (which in the case ...storing the original and final copies of media.

(especially where volume is an issue). For this reason, a process for managing multiple versions of media **content** must be put into place.

### c) Legal Issue Management

When dealing with media, it is often the case that **content** maybe subject to copyright laws. It is important that the legal implications surrounding all **content** in the system is understood, and where necessary, royalties paid to the appropriate parties.

Object Managern (8108) Object Management processes are very similar to those...Plan

### b) Mobilize Program

- \* 0710-ObtainandDeployResources

- \* 0730 - Implement Management Processes

- \* 0750 - Establish Program Management Office

- e 0770 - hnplement h1itial. Teamwork Environment\*

- \* 0790 - Establish Orientation and **Training**

### c) Manage and Improve Program

- \* 0810-DirectProgram

- 0820 - Execute Management Processes

- 0 0830 - Analyze Program Performance

- 0840 - Plan and hnplement Program ...the development of richer user interfaces, so the design processes must adapt to reflect these new technologies. The processes that surround the design of media **content** are similar to that of regular system design, and many of the same issues that apply to designing traditional user interfaces also apply to the design of media **content**. The major change is the involvement of media **content** designers - a gr9up of people not traditionally associated with system design and development. As their presence is relatively new to the scene of systems development, it is often the case that media **content** designers are not fully integrated into the development team - a potentially costly mistake. It is important to ensure that media **content** designers are involved in the design process at a very early stage, and that they are fully integrated into the application design and construction teams... ...allow the development of not only media-rich interfaces, but also the functionality that lies behind them. This means that the role of the media **content** designer may now range from that of designing the look and feel of a user interface, to developing the entire presentation layer of an application... ...is implemented. This communication should involve all the parties involved in the design of the system, and is usually conducted in the form of an **audio** conference. Through this process, it must be ensured that all parties are approaching problems from the same direction, and that they are thinking about the...binary files to

messages. E-mail is a convenient tool for distributing information to a group of people, as it has the advantage of delivering **content** directly to the 'mailbox' of each individual, rather than relying on individuals to access a central data repository in order to retrieve the information.

#### Implementation Considerations

b) Is e-mail likely to contain sensitive information?

When setting up an e-mail system, it is important to consider the **content** that will be transferred using the system and to apply the appropriate security controls accordingly.

- \* Is communication outside the local environment necessary?

- \* Is remote access...the project team?

Teamware will generally only be effective when used within large groups of people.

Unless a critical mass of people is achieved and **content** is regularly added to the system, interest will soon dwindle, and the system will no longer be of any value.

#### GroLap Scheduling (8142)

Group scheduling... each member of the group must always be current. This is the responsibility not only of the group scheduler, but also of the individuals involved.

#### Audio / Video Conference (8144)

In an ideal world, all meetings would be conducted face to face. In reality, however, it is often the case that not all the individuals who are required to take part in a meeting are on the same site. To overcome this problem, **audio** and video conferencing tools allow many individuals in different locations to communicate simultaneously. **Audio** conferencing is not a new concept, but remains a valuable tool for conducting meetings where the issues being discussed do not require the support of such as **audio**, video, and data conferencing could have severe effects on the network infrastructure and this must be anticipated. This type of implementation is also based on... same application running on multiple PCs. In this way they can simultaneously create and edit a single, common file.

Application sharing may be combined with **audio** conference.

#### Process Management (9006)

Process Management may be categorized into two areas.

Workflow management 8150, which concerns more sophisticated situations where several complex processes require...fraudulent credit card transactions.

9 Mobile code security - protects corporate resources, computer files, confidential information, and corporate assets from possible mobile code attack.

E-mail **content** filtering - allows organizations to define and enforce e-mail policies to ensure the appropriate email **content**.

Application development security toolkits - allow programmers to integrate privacy,

authentication, and additional security features into applications by using a cryptography engine and toolkit.

Encryption - provides... ..location of access, successful and unsuccessful access or change attempts, etc.

c) what are the performance implications of the tool?

Some security services, such as **content** scanning or auditing, may add noticeable processing time and requirements to the system. Tools should be architected in such a way that performance impacts are...broad reuse.

A facility for security is required to prevent unauthorized changes to the repository elements and hence to ensure high quality and consistent repository **content**. For example, restrictions are often placed on making changes to data elements because ad-hoc changes by a single designer could have devastating impacts...and one lower-case repository. Bridges between these repositories are key.

Quality of import/export capabilities of the various repositories are key.

In many instances, **content** may not be stored directly in the repository and must be placed in storage. In this case, only a reference is stored in the repository...across several folders

- \* Migration between folders

Nested folders

Links to avoid duplication of components while still showing that a component belongs to

several folders

Media **Content** Management (8106)

Methods for storing and managing media **content** range from simple folder management techniques to multimedia digital asset management systems, capable of indexing and manipulating numerous multimedia data types. There are a number of key requirements for Media **Content** Management - in particular, a Media **Content** Management system should have the ability to.

Manage multiple file formats

Efficiently store high volume files

Manage metadata on files within the system

0 Manage... ..manual processes implemented by the Information Management team depends on the richness of functionality provided by the tools chosen.

Additional functionality provided by advanced Media **Content** Management tools may include.

Intelligent indexing of media types (allowing specialized search facilities)

Capabilities for browsing media **content** (low-res images, previews)

High performance proprietary file systems (both in terms of speed and volume)

## Implementation Considerations

a) natformats need to be supported?

The method of Media **Content** Management depends heavily on what media is to be stored.

Ensure that the target media formats are understood before implementing the Media **Content** Management approach.

b) "ere should media **content** be stored?

Where to store media **content** greatly depends on the volume of media to be stored, and the performance requirements for retrieving that data. One thing is certain however; when dealing...communicated. Computer-Based Training (CBT) tools offer the advantage of being able to train personnel directly on the target environment..

At the more basic level, **training** tools can also include **online** or paper-based **training materials** not offering all the advantages of CBTs, but still providing the flexibility and convenience because they can be conducted as and when the trainee requires, and in any location. This removes the need to organize classes.

The decision of whether to use CBT, **online**, paper-based or instructor-led **training** is affected by the number of people that have to be trained, the complexity of the subject, and the availability and distribution of the people...e) Is there a large number of components?

It may be necessary to keep track of and control configurations consisting of objects such as training **materials**, documentation, hardware components, system software and even building characteristics. The existence of a large number of such components makes the task of managing their configurations...b) Is the system complex?

Change control has broader applicability than to just application source code. It may also affect the look and feel, training **materials**, documentation, and so forth. Change Control must be formalized if the system is complex with many components.

c) Do changes need to be authorized by...and other development information must therefore be backed up regularly. Backup and restore procedures The advent of Netcentric technologies has introduced an increase in media **content** that requires storage. The environment may support a high volume of media files, which must be considered in the backup/restore plans. Storage capacity planning...location of access, successful and unsuccessful access or change attempts, etc.

c) What are the performance implications of the tool?

Some security services, such as **content** scanning or auditing, may add noticeable processing time and requirements to the system. Tools should be architected in such a way that performance impacts are...to the interface. Problems the users may have in working with the interface can be identified early on, and can be accounted for in training **materials** that are developed.

p) Is there a high degree of innovation in the workflow?

Prototyping allows the developers to experiment and, with input from users...type of environment therefore entails the generation of HTML pages, often with additional components (JavaScript, 3rd party ActiveX controls, Plugins) providing enhanced functionality or media **content**. Many tools are currently available for designing and creating web **content**, although HTML remains the common denominator, at the very least as a placeholder for the **content**.

In the case of systems published on the Internet, defining the target audience is less straightforward than in traditional systems, but equally important. Having a...of wrapping an object/code. As objects/code become more complex, with more functions/interfaces, then the value of wrapping them becomes more tangible.

### Media **Content** Creation

As systems become increasingly user-facing, it is important to design user interfaces that are not only functional, but also engaging ...evolution of media-rich applications, the development of which requires new tools and processes, and brings with it a whole new set of issues.

Media **content** can be broken down into three major media types, each with its own set of tools.

#### 0 2D/3D Images/Animation

##### Video

##### **Audio**

#### 2D/3D Images/Animation

Tools to handle these images range from simple paint packages to highly complex multi-layered animation graphics packages. The images created by these... use of high-quality textured images, or highly colored images is important, but where file storage and transmission is not an issue (where the media **content** is local to the client application, such as in a kiosk).

Vector-based tools (where the image is defined by formulae rather than pixel position... process of video production mean that it is usually outsourced to a third party. It is important however that the personnel charged with creating video **content** are an integral part of the Application team.

##### **Audio**

The tools required for creating **audio content** depend on the quality required, and whether or not the **content** is original. For 'sound bites' or pre-recorded **audio**, simple desktop **audio** editing applications are adequate. For high-quality original **content**, a professional recording studio is recommended. Again, if third parties are involved, it is important that they are fully integrated into the team.

For both image and **audio**, it is possible to purchase re-usable **content** from agencies, usually delivered in the form of CD-ROMs.

NOTE: Tools required to store and manage media **content** (and storage formats) are discussed in

Tools - Information Management - Media **Content** Managem

Test (8136)

Testing applications (client/server or Netcentric) remains a complex task because of the large number of integrated components involved (for example, multiplatform...as a background task, freeing up system resources for use on-line.

Will review before printfacilities be provided?

If these facilities will be provided, all **material** will not need to be printed. If the **material** does need to be print; however, the location of the printing must be determined, and the system must be able to forward the printing on...

**Dialog eLink:** Order File History

7/K/62 (Item 24 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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### Detailed Description:

...process for financing or settling an account according to one embodiment of the present invention;

Figure 80 illustrates a process for procuring information during the **course** of a transaction in

accordance with an embodiment of the present invention;

- 12 Figure 81 is an illustration of the Integrated Development Environment Architecture (IDEA... ..the eCommerce Application Framework;

Figure 98 illustrates a simple personalization process;

Figure 99 is a graphical depiction of extents of personalization;

Figure 100 illustrates a **content** catalog that cm be used to manage an enterprise's **content**; Figure 101 illustrates an exemplary template with three Dynamic **Content** Areas (DCAs) embedded within the template in accordance with a method of associating a rule and **content** to an interaction;

Figure 102 depicts a ShARE (Selection, Acquisition, Retention, and Extension) customer relationship model which addresses the changes in a shift to interactive...independent Java applets." Java applets are small, specialized applications that comply with Sun's Java Application Programming Interface (API) allowing - 29 developers to add "interactive

**content**" to Web documents (e.g., simple animations, page adornments, basic games, etc.). Applets execute within a Java-compatible browser (e.g., Netscape Navigator) by copying... Another technology that provides similar function to JAVA is provided by Microsoft and ActiveX Technologies, to give developers and Web designers wherewithal to build dynamic **content** for the Internet and personal computers. ActiveX includes tools for developing animation, 3-D virtual reality, video and other multimedia **content**. The tools use Internet standards, work on multiple platforms, and are being supported by over 1 00 companies. The group's building blocks are called...Only VTrade Members is granted access from outside based on user names and passwords, Internet IP address, or domain name Integrity.

o confirmation that the **content** of a message has not been altered  
Non-repudiation.

the signer cannot deny the signing of the message  
Confidentiality.

relevant information is kept secret, only...in commoditized products"  
- 44 The three emerging online marketplaces serve the basic functions of bringing buyers and sellers together online to easily exchange value, provide **content**, and form a community. As shown in Figure 54, these three marketplaces may be brought together to create an eMarketplace 5400.

eMarketplaces can target either vertical market segments or horizontal market needs.

Vertical

Description

o Provide deep industry-specific **content**  
o Provide domain-specific relationships and contacts  
...solutions 5600, IT 5602, fulfillment 5604, and financial services/risk management 5606.

In addition to having attractive forums of exchange, electronic exchanges must also provide **content** and support the creation of communities.

**Content** includes developing information which allows users to develop a strong understanding of what they're trading and with whom. Examples include historical price/volume data...invention. Reference numerals 1-5 set forth the order of the operations of the process.

Figure 80 illustrates a process for procuring information during the **course** of a transaction in accordance with an embodiment of the present invention. Reference numerals 1-4 set forth the order of the operations of the...s responsibility to ensure consistency across all these formats.

The responsibilities of the Information Management team therefore cover.

Repository Management

\* Folder Management

Object Management

Media **Content** Management

Information and data reuse coordination

In addition to managing the information for the System Building team, the Information Management team must also manage the...designs

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Packaging classes and components for reuse

Managing maintenance and upgrades of common components (a strong relationship with Configuration Management team is required)

Media **Content** Managem

The methods of handling media **content** are somewhat different from those surrounding more traditional development **content** such as code or documentation, for this reason, a role should be defined that is responsible for the management of all media **content**.

Quality Management

The Quality team is responsible for defining and implementing the Quality Management 10' Approach, which means defining what Quality means for the...and so forth.

As systems become more user-facing, important new roles are emerging that must be integrated into the Application Development teams.

a) Media **Content** Design

For any system with a user-facing component, it is extremely important that media and design specialists are involved as team members at an... ..creative and attractive user interfaces, but also reduces the risk of further alteration to work at a later stage.

b) Usability

Often coupled with Media **Content** Design, it is vital that a role for usability is defined within the Application Development teams. This will ensure the usability of the system from...A vast amount of information is generated within the development environment, which needs to be carefully managed (for example, design documentation, application code, media **content**, test plans and test data). Information Management generally involves Repository Management, Folder Management and, where applicable, Object Management and Media **Content** Management.

Since a number of teams rely on the service provided by the information management team, it is important that the level of service to... ..information management team and the other project teams at a detailed level.

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Repository Management (8102)

Repository Management includes activities such as.

- \* Monitoring and controlling **update** activities in the repository

- \* Receiving and ...9 Maintenance

Validation and mass change

Analysis, reporting, and querying

Security

Restricted access to various repository object types is necessary to ensure high quality repository **content**, because developers sometimes take shortcuts and make unauthorized changes to meet their deadlines. When standards have been set, a good way to enforce them is...the kinds of contents it should hold.

0 Perform regular clean-up, by backing up redundant or misplaced files and then removing them.

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Media **Content** Management (8106)

The unique nature of media **content** means that it cannot be treated in the same way as 'standard' formats, such as source code or design documentation. The major differentiating factors are... ..e. it is not easy to 'look into' a media file and understand its contents).

For this reason, some of the processes that support -multimedia **content** management must be handled differently.

The three major processes that are required to support media **content** management are.

Storage management

- o Metadata management

Version control

Storage Management

Storage management concerns the methods of storing and retrieving media **content**. The cost of data storage may be decreasing, but it is still the case that for large volumes of media it is often uneconomical to... ..hard disk)

Near-line(delayedaccess,forexample,CD-ROMjukebox)

- \* Off-line (manual access, for example, CDs or tapes on shelves)

- 85 When deciding on where media **content** should be stored@ there is always a trade-off between accessibility and cost (on-line storage being the most accessible and most expensive, and off... ..accessibility requirements.

Metadata Management

Data about the media that is being stored is an important commodity that must be managed. As the volume of media **content** grows, it is vital to be able to understand characteristics of the media, in order to be able to manage it correctly. Examples of metadata include.

110 \* Media type (for example, MPEG video, JPEG image)

Media settings (for example, sample rate, resolution, compression attributes)

Usage details (which module uses the **content**)

Media source (for example, Source, author, creation date)

Legal information (for example, whether the media is copyrighted)

Version Control

As with standard development code, when media **content** is created and edited, a revision history of changes should be retained. This way, if it is necessary to revert to an original piece of media **content**, it is not necessary to go all the way back to the original source (which in the case of finding an image in a CD... ...storing the original and final copies of media (especially where volume is an issue). For this reason, a process for managing multiple versions of media **content** must be put into place.

- 86 The more advanced media **content** management tools may provide much of the functionality required to support these processes, but where this is not the case, the processes must be implemented manually.

#### e) Legal Issue Management

When dealing with media, it is often the case that **content** may be subject to copyright laws. It is important that the legal implications surrounding all **content** in the system is understood, and where necessary, royalties paid to the appropriate parties.

#### Object Management (8108)

Object Management processes are very similar to those...coordination of products that contribute to a release

- too The coordination of products that contribute to a release is the maintenance of a bill of **materials** for a release. It is an inventory of all software and hardware components that are related to a given release. The development environment is directly...the development of richer user interfaces, so the design processes must adapt to reflect these new technologies. The processes that surround the design of media **content** are similar to that of regular system design, and many of the same issues that apply to designing traditional user interfaces also apply to the design of media **content**. The major change is the involvement of media **content** designers - a group of people not traditionally associated with system design and development. As their presence is relatively new to the scene of systems development, it is often the case that media **content** designers are not fully integrated into the development team - a potentially costly mistake. It is important to ensure that media **content** designers are involved in the design process at a very early stage, and that they are fully integrated into the application design and construction teams... ...allow the development of not only media-rich interfaces, but also the functionality that lies behind them. This means that the role of the media **content** designer may now range from that of designing the look and feel of a user interface, to developing the entire presentation layer of an application...is implemented. This communication should involve all the parties involved in the design of the system, and is usually conducted in the form of -an **audio** conference. Through this process, it must be ensured that all parties are approaching problems from the same direction, and that they are thinking about the...is closely followed. Action points and commitments made during these calls must also be documented. Where issues arise that cannot - 135 be resolved

using an **audio** conference (usually because the subject is based on a visual concept), video conferencing may be necessary.

#### E-Mai (8138)

E-mail provides the capability of E-mail is a convenient tool for distributing information to a group of people, as it has the advantage of delivering **content** directly to the 'mailbox' of each individual, rather than relying on individuals to access a central data repository in order to retrieve the information.

#### Implementation Considerations

b) Is e-mail likely to contain sensitive information?

When setting up an e-mail system, it is important to consider the **content** that will be transferred using the system and to apply the appropriate security controls accordingly.

- \* Is communication outside the local environment necessary?

- \* Is remote access groups of people. Unless a critical mass of people is achieved and **content** is regularly added to the system, interest will soon dwindle and the system will no longer be of any value.

#### GroEp Scheduling (8142)

Group scheduling... ...member of the group must always be current. This is the responsibility not only of the group scheduler, but also of the individuals involved.

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#### **Audio** / Video Conference (8144)

In an ideal world, all meetings would be conducted face to face. In reality, however, it is often the case that not all the individuals who are required to take part in a meeting are on the same site. To overcome this problem, **audio** and video conferencing tools allow many individuals in different locations to communicate simultaneously. **Audio** conferencing is not a new concept, but remains a valuable tool for conducting meetings where the issues being discussed do not require the support of... ...a much richer method of communication.

#### Implementation Considerations

a) Is there enough bandwidth to support a video conferencing system?

Adding bandwidth intensive applications such as **audio**, video, and data conferencing could have severe effects on the network infrastructure and this must be anticipated. This type of implementation is also based on...same application running on multiple PCs. In this way they can simultaneously create and edit a single, common file.

Application sharing may be combined with **audio** conference.

#### Process Management (9006)

Process Management may be categorized into two areas.

- 141 Simple process integration 8148, which concerns the simple integration of a

sequence...credit card transactions.

0 Mobile code security - protects corporate resources, computer files, confidential information, and corporate assets from possible mobile code attack.

- 146 E-mail **content** filtering - allows organizations to define and enforce e-mail policies to ensure the appropriate email **content**.

Application development security toolkits - allow programmers to integrate privacy, authentication, and additional security features into applications by using a cryptography engine and toolkit.

Encryption - provides...location of access, successful and unsuccessful access or change attempts, etc.

c) What are the performance implications of the tool?

Some security services, such as **content** scanning or auditing, may add noticeable processing time and requirements to the system. Tools should be architected in such a way that performance impacts are...broad reuse.

A facility for security is required to prevent unauthorized changes to the repository elements and hence to ensure high quality and consistent repository **content**. For example, restrictions are often placed on making changes to data elements because ad-hoc changes by a single designer could have devastating impacts on...and one lower-case repository. Bridges between these repositories are key.

Quality of import/export capabilities of the various repositories are key.

In many instances, **content** may not be stored directly in the repository and must be placed in storage. In this case, only a reference is stored in the repository... ...integrating point tools around a common repository.

p

In addition to the repository, which plays a key role, other important tool categories include the **following**.

k) Security

Repository **access** can sometimes be controlled using an **access** control function, which comes with the repository. A common technique is to group users and assign different access rights to the different groups. Each of...folders

0 Migration between folders

Nested folders

Links to avoid duplication of components while still showing that a component belongs to

several folders

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## Media **Content** Management (8106)

Methods for storing and managing media **content** range from simple folder management techniques to multimedia digital asset management systems, capable of indexing and manipulating numerous multimedia data types. There are a number of key requirements for Media **Content** Management - in particular, a Media **Content** Management system should have the ability to.

Manage multiple file formats

Efficiently store high volume files

Manage metadata on files within the system

9 Manage... ..manual processes implemented by the Information Management team depends on the richness of functionality provided by the tools chosen.

Additional functionality provided by advanced Media **Content** Management tools may include.

Intelligent indexing of media types (allowing specialized search facilities)

Capabilities for browsing media **content** (low-res images, previews)

High performance proprietary file systems (both in terms of speed and volume) - 160

Implementation Considerations

a) fVhatformats need to be supported?

The method of Media **Content** Management depends heavily on what media is to be stored.

Ensure that the target media formats are understood before implementing the Media **Content** Management approach.

b) where should media **content** be stored?

Where to store media **content** greatly depends on the volume of media to be stored, and the performance requirements for retrieving that data. One thing is certain however; when dealing...communicated. Computer-Based Training (CBT) tools offer the advantage of being able to train personnel directly on the target environment.

At the more basic level, **training** tools can also include **online** or paper-based **training materials** not offering all the advantages of CBTs, but still providing the flexibility and convenience because they can be conducted as and when the trainee requires, and in any location. This removes the need to organize classes.

The decision of whether to use CBT, **online**, paper-based or instructor-led **training** is affected by the number of people that have to be trained, the complexity of the subject, and the availability and distribution of the people...e) Is there a large number of components?

It may be necessary to keep track of and control configurations consisting of objects such as training **materials**, documentation, hardware components, system software and even building characteristics. The existence of a large number of such components makes the task of managing their configurations...b) Is the system complex?

Change control has broader applicability than to just application source code. It may also affect the look and feel, training **materials**, documentation, and so forth. Change Control must be formalized ...anticipated. The large volumes of complex data generally require automation of backups and restores.

The advent of Netcentric technologies has introduced an increase in media **content** that requires storage. The environment may support a high volume of media files, which must be considered in the backup/restore plans. Storage capacity...day, location of access, successful and unsuccessful access or change attempts, etc.

c) "at are the performance implications of the tool?

Some security services, such as **content** scanning or auditing, may add noticeable processing time and requirements to the system. Tools should be architected in such a way that performance impacts are...to the interface. Problems the users may have in working with the interface can be identified early on, and can be accounted for in training **materials** that are developed.

p) Is there a high degree of innovation in the workflow?

Prototyping allows the developers to experiment and, with input from users...type of environment therefore entails the generation of HTML pages, often with additional components (JavaScript, 3rd party ActiveX controls, Plugins) providing enhanced functionality or media **content**. Many tools are currently available for designing and creating web **content**, although HTML remains the common denominator, at the very least as a placeholder for the **content**.

hi the case of systems published on the Internet, defining the target audience is less straightforward than in traditional systems, but equally important. Having a...wrapping an object/code. As objects/code become more complex, with more functions/interfaces, then the value of wrapping them becomes more tangible.

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### Media **Content** Creation

As systems become increasingly user-facing, it is important to design user interfaces that are not only functional, but also engaging and informative. This... ..evolution of media-rich applications, the development of which requires new tools and processes, and brings with it a whole new set of issues.

Media **content** can be broken down into three major media types, each with its own set of tools.

### 1 0 9 -2D/3D Images/Animation

#### Video

#### **Audio**

#### 2D/3D Images/Animation

Tools to handle these images range from simple paint packages to highly complex multi-layered animation graphics packages. The images created by these... ..use of high-quality

textured images, or highly colored images is important, but where file storage and transmission is not an issue (where the media **content** is local to the client application, such as in a kiosk).

- 249 Vector-based tools (where the image is defined by formulae rather than pixel...  
...process of video production mean that it is usually outsourced to a third party. It is important however that the personnel charged with creating video **content** are an integral part of the Application team.

### Audio

The tools required for creating **audio content** depend on the quality required, and whether or not the **content** is original. For 'sound bites' or pre-recorded **audio**, simple desktop **audio** editing applications are adequate. For high-quality original **content**, a professional recording studio is recommended. Again, if third parties are involved, it is important that they are fully integrated into the team.

For both image and **audio**, it is possible to purchase re-usable **content** from agencies, usually delivered in the form of CD-ROMs.

NOTE: Tools required to store and manage media **content** (and storage formats) are discussed in

Tools - Information Management - Media **Content** Management

Test (8136)

Testing applications (client/server or Netcentric) remains a complex task because of the large number of integrated components involved (for example, multiplatform...

7/K/63 (Item 25 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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Country	Number	Kind	Date
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### Detailed Description:

...an online computer service that can be accessed by customers. However, creating a large online computer service is an extensive task. To develop a sophisticated **online** service, such as America **Online**.RTM., CompuServe.RTM., Genie.RTM., or Prodigy.RTM., a company must have a large mainframe computer and customized software. Developing the customized software requires a...the user for performing some type of action such as winning a contest or completing a marketing survey. Third, an online service may charge a **content** provider for placing certain

information on the online service. For example, a **content** provider can be charged for placing an advertisement on the online service. Finally, a **content** provider can be paid by the offline service for providing information that users may wish to access, can be provided on a for-fee basis. Conversely, an online service provider may wish to pay third party **content** providers for placing useful **material** on the online service.

Thus, when creating a publicly accessible online system, it is desirable to include the ability to define fee structures for accessing... to a "captive audience" that many or most end users remain tuned to the same signal even when the main program to which they are **listening** or viewing is interrupted by advertisements.

Another example of advertising mixed with information dissemination is the use of scrolled text at the bottom of a...like.

Yet another example of mixing advertisements with information dissemination are newspapers and magazines.

Most, and perhaps all such examples of mixing advertisements with information **content** are based on systems in which the end user has actively elected to view or **listen** to a program or to otherwise receive information. Furthermore, in virtually all such systems or media, the juxtaposition or placement of advertisements and information **content** is explicitly programmed or determined by human beings working as "editors" or in a similar **content** and/or presentation editing capacity.

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Distributing information via the Internet or other publicly accessible computer communication networks has been largely unsupported by advertising revenues due to the lack of good mechanisms for mixing advertising and information **content** in such a way as to be acceptable to both end users and advertisers.

There are, of **course**, some exceptions where advertising/**content** mixtures from other contexts, such as newspapers and television, have been simply replicated on the Internet. For instance, some newspapers have been "published" at least in part on the Internet, and include advertisements along with information **content**. In fact, some newspapers sell advertising space on an associated World Wide Web (WWW) site, which often includes extensive listings of certain types of advertisements... food and grocery, personal care, hardware and appliances, means that a retailer may have thousands of models or varieties of goods in inventory, each, of **course**, with a concomitant price. The result of this multitude of consumer products is that the control and consistency of pricing has assumed increasing importance, especially...in the stock brokerage area, will provide market pricing of stocks. While these systems can accommodate a continually changing price situation, the actual pricing, of **course**, is independent of the system, i.e., pricing is controlled by the stock market.

The current wide-ranging use of computer systems provides a relatively large potential

market to providers of electronic **content** or information. These providers may include, for example, advertisers and other information publishers such as newspaper and magazine publishers. A cost, however is involved with... ..Thus, it would be beneficial to provide a system which allows individual users to control the amount of electronic advertising they receive with their electronic **content**.

In addition, providers of electronic advertisements would be able to subsidize the cost of electronic **content** for end users. The amount of this subsidy would be dependent on the amount of electronic advertising which is consumed by the end users and... ..these consumers. Thus, it would be beneficial to provide a system, which allows the providers of electronic advertisements to provide advertising-based subsidization of electronic **content** consumption, based upon the perceived quality of consumers who have specifically chosen to consume these advertisements, cognizant of the fact that consuming these advertisements will subsidize their electronic **content** consumption fees..

#### ORDER PLACEMENT

Collects user information for order processing (shipping, billing)

Recaps order for confirmation (shipping, price, availability)

Allows for order maintenance (qty, product...publishers, and other distributors, of electronic information,

(2) financial service (e.g. credit) providers,

(3) users of (other than financial service providers) information arising from **content** usage such as **content** specific demographic information and user specific descriptive information. Such users may include market analysts, marketing list compilers for direct and directed marketing, and government agencies,

(4) end users of **content**,

(5) infrastructure service and device providers such as telecommunication companies and hardware manufacturers (semiconductor and electronic appliance and/or other computer system manufacturers) who receive... ..to support the various underlying agreements between parties that comprise this extended agreement. These agreements can define important electronic commerce considerations including.

(1) security,

(2) **content** use control, including electronic distribution,

(3) privacy (regarding, for example, information concerning parties described by medical, credit,

tax, personal, and/or of other forms of... ..but such agreements may, at times, not directly obligate or otherwise directly involve other WAF value chain participants. For example, an electronic agreement between a **content** creator and a distributor may establish both the price to the distributor for a creator's **content** (such as for a property distributed in a WAF container object) and the number of copies of this object that this distributor may distribute to... ..in a three party agreement in which the end-user agrees to certain requirements for using the distributed product such as accepting distributor charges for

**content** use and agreeing to observe the copyright rights of the creator. A third agreement might exist between the distributor and a financial clearinghouse that allows... ..separate (fourth) agreement directly with the clearinghouse extending credit to the end-user. A fifth, evolving agreement may develop between all value chain participants as **content** control information passes along its chain of handling. This evolving agreement can establish the rights of all parties to **content** usage information, including, for example, the nature of information to be received by each party and the pathway of handling of **content** usage information and related procedures. A sixth, agreement in this example, may involve all parties to the agreement and establishes certain general assumptions, such as... ..support evolving ("living") electronic agreement arrangements that can be modified by current and/or new participants through very simple to sophisticated "negotiations" between newly proposed **content** control information interacting with control information already in place and/or by negotiation **between** concurrently proposed **content** control information submitted by a plurality of parties. A given model may be asynchronously and progressively modified over time in accordance with existing senior rules and such modification may be applied to all, to classes of, and/or to specific **content**, and/or to classes and/or specific users and/or user nodes. A given piece of **content** may be subject to different control information at different times or places of handling, depending on the evolution of its **content** control

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Electronic agreements supported by the preferred embodiment of the present invention can vary from very simple to very elaborate. They can support widely...or currency usage and administration capabilities, (d) privacy protection for usage information a user does not wish to release, and.

(e) "living" electronic information **content** dissemination models that flexibly accommodate.

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(1) a breadth of participants,  
 (2) one or more pathways (chains) for: the handling of **content**, **content** and/or appliance control information, reporting of **content** and/or appliance usage related information, and/or payment, (3) supporting an evolution of terms and conditions incorporated into **content** control information, including use of electronic negotiation capabilities,  
 (4) support the combination of multiple pieces of **content** to form new **content** aggregations, and (5) multiple concurrent models.

## ORDER STATUS AND HISTORY

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Provides real-time order status (backorders)

Provides real-time shipping status

Provides real...of following transactions. To properly track activity, a trade generates a (virtual and/or real) single trade ticket--with associated, and screen-displayed, reference number.

## CONTENT CHANNEL-RELATED WEB APPLICATION SERVICES

As illustrated in Figure 53 and denoted by reference numeral 5302, another embodiment of the present invention is provided for affording a combination of **content** channel-related web application services. More detail is given in Figure 66. Various features are included such as downloading data in operation 6600 and transmitting... ..push-technology data, based on user specifications in operation 6602. In operation 6604, a plurality of newsgroups are also provided to which users may subscribe. **Content** subscriptions are also available. Answers are provided to frequently asked questions (FAQ's) relating to the **content**-related web application

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Options include monitoring a success rate of the downloading data and automatically transmitting the data that is transmitted based on the... ..are tracked. If an error occurs during downloading, the download is restarted. These features greatly facilitate transactional dependent downloads.

## PUSH TECHNOLOGY CAPABILITIES

Sends messages or **content** to customers proactively

Allows for delivery and receipt of custom applications developed in all major languages (Le.

Visual Basic, C++, Java)

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Performs informal hardware and software audits

Delivers self-updating applications

Referring to operation 6602 of Figure 66, push-technology data is transmitted based on user specifications. Preselected messages and **content** may be sent to customers proactively.

Furthermore, applications could be received, installed, and launched automatically without user intervention. For example, a software update could be... ..languages, such as VISUAL BASIC, C++, and JAVA, is allowed. Plug-ins may also be utilized to allow 15 developers to personalize applications and **content**.

## DISCUSSION FORUMS AND NEWSGROUPS

Securely handles all media types (e.g. graphics, **audio**, etc.)

Links to web pages for easy access to published documents

Facilitates discussions across multiple discussion groups

Finds information with search and notification tools

Allows... ..Operation 6604 of Figure 66 provides for a plurality of newsgroups to which users can subscribe.

Sending and receipt of all media types, including graphics, **audio**, streaming video, and the like is permitted. A user may also participate in discussions via email. Selected users or ...be provided that permits discussions across multiple discussion groups.

Optionally, links to web pages may be selected to access related sites and published

documents.

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## **CONTENT SUBSCRIPTIONS**

Allows users to subscribe and unsubscribe for different services

Allows subscribers to set up **content** preferences (e.g. topics)

Allows users to subscribe third parties for services

The **content** channels component of the present invention allows users to subscribe and unsubscribe to different services such as, for example, newsletters, travel clubs, and the like.

Users would also be allowed to limit the **content** of the **materials** received to their particular preference. For example, a user would select several topics from a list of topics and would later receive information on the... ..selected services.

## **FREQUENTLY ASKED QUESTIONS**

Displays static answers to popular questions

Dynamically generates questions and answers from a knowledge base

Tracks knowledge experts based on **content** authors and discussion forum participation

Referring to operation 6606 of Figure 66, the **content** channels component of the present invention would also include a component for displaying static answers to popular questions.

The questions and answers could be dynamically... ..users if another user is on-line

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Provides free form discussion area

Allows for moderated chat sessions

Chat capabilities could be included in the **content** channels component of the present invention.

Note operation 6608 of Figure 66. Such capabilities would permit collaborative web touring and URL pasting, for such things... ..and tracks outbound messages

Automates regular communication triggered by events

Tracks email responses for campaign management statistics

In operation 6610, shown in Figure 66, the **content** channels component of the present invention also permits generation of messages which may be sent to selected users at predetermined times or automatically upon occurrence... ..the appropriate departments

Stores messages to build customer interaction histories

Queues messages in mailboxes for response

Facilitates review and response process

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## **DYNAMIC RENDERING**

Displays **content** and applications based on profile

Pulls **content** from multiple data sources: static, database, third party site

Matches **content** to users via configurable business rules

Allows custom template based publishing

The **content** channels component of the present invention also provides for generic and custom template based publishing by displaying selected **content** and applications based on the profile of a user. Note operation 6614 of Figure 66. **Content** is obtained from multiple data sources, including static, database, and. third party sites. Optionally, the **content** may be inatched to particular users via configurable business rules.

#### ADMINISTRATIVE AND FINANCIAL WEB APPLICATION SERVICES

Another embodiment of the present invention is provided for... ..may orily be routed to certain destinations selected by the users subinitting the resumes.

#### SHAREHOLDER SERVICES

Provides personalized stock tickers

Displays corporate financial information

The **content** channels component of the present invention provides a customizable display including personalized stock tickers, links to corporate financial information, and an online brokerage service. Other... ..Accepts notification of legal questions or issues  
Provides media kits

Allows users to register for branding usage

Legal notices and policies are displayed by the **content** channels component of the present invention. Legal questions and !ssues are accepted and stored for later reply. A user is also allowed to register for...profile in operation 6802. The user is allowed to select the item for purchase. See operation 6803.

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#### DYNAMICALLY FACILITATE COMMUNITIES OF INTEREST

Provides static **content** and applications to people with similar preferences or business needs  
Provides dynamic **content** and applications to people with similar preferences or business needs

Communities can be created by configurable business rules

5 The customer relationship management component of the present invention, in operation 6702, provides statie **content** and applications to people with similar preferences and business needs. Dynamic **content** is provided, as are applications, to people with similar preferences and business needs.

#### MATCH WEB CONTENT TO SPECIFIC USER PROFILES

Permits cross- and up-sell of produets to customers based on user profile

Offers personalized recommendations based on an individual's profile

Targets **content** and advertisements based on an individuaPs profile

Relates legacy databases and information to personal profile information

**Content** matching rules are defined by configurable business rules

Uses metadata and business rules to match **content** to profiles

The customer relationship management component of the present invention permits matching of web **content** and advertisements to specific user profiles. Note operation 6704 of Figure 67.

Personalized reconimendations are made based on the profile of a user. Cross- and up-

selling of products to users based on their profiles is also permitted. Optionally, **content** matching rules are defined by configurable business rules. In the alternative, metadata and business rules match

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## CUSTOMER FEEDBACK AND SURVEYS

Automates creation and administration... ..she has registered. The registration function is integrated with commerce functions to permit fee-based registration capabilities, such as pennitting online registration via credit card.

## CONTENT MANAGEMENT AND PUBLISHING-RELATED WEB APPLICATION SERVICES

Stores current files along with past changes to documents, source code, and Web **content**

Assigns user-specific and project specific authorization for secure adininistration

Reconciles file changes from multiple users and prevents accidental code overwriting

Generates site maps

Maintains metadata for **content**

One embodiment of the present invention, illustrated in Figure 53 as component 5308, is provided for affording a combination of **content** management and publishing-related web application services. In use, referring to Figure 70, **content** of a data interface, Le. a web-site, may be developed for **accessing** data on a network, Le. the Intemet, **after** which such.**content** is managed in operation. Note operations 7000 and 7002, respectively.

Publishing of the **content** of the data interface is controlled by precluding transmission or publication of the **content** untile' approval in operation 7004. The **content** of the data interface may also be tested in operation 7006. For example, this may be accomplished by creating a staging and deployment environment in which the data interface is analyzed. Further features include "text-only" rendering and **content** workflow control.

As an option, the step of developing **content** of a data interface may be carried out by a data version controller. A **content** developer may be automatically notiried of a work assignment. Managing the **content** may include assigning a secure access for specific users and specific projects. Meta data could be maintained and language translation tools could be utilized. Approving the publication of the **content** may include assigning use and access restrictions on the **content**, Testing the **content** of the data interface may include comparing

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## Controlling Electronic Content

A fundamental problem for electronic **content** providers is extending their ability to control the use of proprietary information. **Content** providers often need to limit use to authorized activities and amounts. Participants in a business model involving, for example, provision of movies and advertising on optical discs may include actors, directors, script and other writers, musicians, studios, publishers, distributors, retailers, advertisers, credit card. services, and **content** end-users.

These participants need the ability to embody their range of agreements and requirements, including use limitations, into an "extended" agreement comprising an overall electronic business model. This extended agreement is represented by electronic

**content** control information that can automatically enforce agreed upon rights and obligations. Under WAF, such an extended agreement may comprise an electronic contract involving all business... the same way as traditional commerce--that is commercial relationships regarding products and services can be shaped through the negotiation of one or more agreements **between**.

a variety of parties.

Commercial **content** providers are concerned with ensuring proper compensation for the use of their electronic information. Electronic digital information, for example a CD recording, can today be... unauthorized copy!ng and use of software programs deprives rightful owriers of billions of dollars in annual revenue according to the Intemational Intellectual Property Alliance. **Content** providers and distributors have devised a number of limited function rights protection mechanisms to protect their rights. Authorization passwords and protocols, license servers, 9ock/unlock` distribution methods, and non-electronic contractual limitations imposed on users of shrink-wrapped software are a few of the more prevalent **content** protection schemes. In a conimercial context, these efforts are inefficient and limited solutions.

Providers of "electronic currency" have also created protections for their type of **content**. These systems are not sufficienlly adaptable, efficient, nor flexible enough to support the generalized

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WAF Control Capabilities

WAF allows the owners and distributors of...

## Claims:

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. A method for providing network services in a system as recited in claim 1, wherein the step of caching **content** of the network includes accessing the cached **content** without accessing the original **content** source and automatically **updating** the cached **content**. .

A method for providing network services in a system as recited in clalm 1, wherein the 1 5 step of providing application proxy services on... firewall attacks.

10 An apparatus for managing network assets through asset tracking in an e-Commerce based supply chain framework comprising:(a) logic that caches **content** of a network;1 0 (b) logic that provides application proxy services on the network;(c) logic that manages resources of the network;(d) logic... computer-readable medium that manages network assets through asset tracking in an e-Commerce-based supply chain

framework,comprising:(a) a code segment that caches **content** of a network;(b) a code segment that provides application proxy services on the network;(c) a code seginent that manages resources of the network... embodied on a computer-readable medium that provides network services in a system as recited in claim 1 1, wherein the code segment that caches **content** of the network accesses the cached **content** without accessing the original source and the automatically **updates** the cached **content**.485. A computer

program embodied on a computer-readable medium that provides network services in a system as recited in claim 11, wherein the... functions and firewall attacks.

20 A method for technology sharing during asset management in a network-based supply chain, comprising the steps of : (a) developing **content** of a technology interface for sharing technology on a network; (b) managing the **content** of the technology interface and network assets of the network; 486. A method as recited in claim 20, wherein the step of developing **content** of a technology interface is carried out by a technology version controller.

22 A method as recited in claim 20, wherein the step of developing the **content** of the technology interface includes automatically notifying a **content** developer of a work assignment during management of network assets.

23 A method as recited in claim, 20, wherein the step of managing the **content** and network assets includes assigning a secure access for specific users and specific projects.

24 A method as recited in claim 20, wherein the step of managing the **content** and network assets includes maintaining meta data.

25 A method as recited in claim 20 wherein the step of managing the **content** and network assets includes utilizing language translation tools.

26 A method as recited in claim 20, wherein the step of approving the publication of the **content** includes assigning use and access restrictions on the **content**.

27 A method as recited in claim 20, wherein the step of testing the **content** of the technology interface includes comparing versions of the technology interface.

28 A method as recited in claim 20, wherein the step of testing the **content** of the technology interface includes utilizing remote and automatic testing capabilities.

29 A system for technology sharing during asset management in a network-based supply chain, comprising: (a) logic that develops **content** of a technology interface for sharing technology on a network; (b) logic, that manages the **content** of the technology interface and network assets of the network; (c) logic that approves the publication of the **content** before transmission of the **content**; and (d) logic that tests the **content** of the technology interface. 487 **content**; and (d) a code segment that tests the **content** of the technology interface.

31 A computer program as recited in claim 30, wherein the code segment that develops **content** of the technology interface utilizes a technology version controller.

32 A computer program as recited in claim 30, wherein the code segment that develops the **content** of the technology interface automatically notifies a **content** developer of a work assignment during management of network assets.

33 A computer program as recited in claim 30, wherein the code segment that manages the **content** and network assigns a secure access for specific users and specific projects.

34 A computer program embodied on a computer-readable medium that provides a combination of **content** management-related web application services as recited in claim

30 wherein the code segment that manages the **content** maintains meta data.

35 A computer program embodied on a computer-readable medium that provides a combination of **content** management-related web application services as recited in claim

30 wherein the code segment that manages the **content** utilizes language translation tools.

36 A computer program embodied on a computer-readable medium that provides a combination of **content** inariagerment-related web application services as recited in claim

30 wherein the code segment that approves the publication of **content** assigns use and access restrictions on the **content**.

37 A computer program embodied on a computer-readable medium that provides a combination of **content** management-related web application services as recited in claim 488. A computer program embodied on a computer-readable medium that provides a combination of **content** management-related web application services as recited in claim 30 wherein the code segment that tests the **content** of the technology interface includes remote and automatic testing capabilities.

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BASED ON USER SPECIFICATIONS PROVIDING A PLURALITY OF  
 NEWSGROUPS TO WHICH LISERS  
 SUBSCRIBE OUTPUTTING ANSWERS TO FREQUENTLY ASKED QUESTIONS RELA  
 TING TO THE 6606 **CONTENT**-RELATED WEB APPLICATION  
 SERVICES 8 ENABLING REAL TIME COMMUNICATION BETWEEN A  
 PLURALITY OF THE USERS COORDINATING THE TRANSMISSION OF  
 ELECTRONIC MAIL 6610 ORGANIZING RECEIVED ELECTRONIC... ...A USER  
 USES THE SYSTEM LOGGING THE USER'S CURRENT ACTIVITIES AND  
 ENTERING THEM 6903 INTO THE DATABASE Figure  
 69681069/129nn DEVELOPING **CONTENT** OF A DATA INTERFACE FOR  
 ACCESSING DATA ON A NETWORK MANAGING THE **CONTENT** OF THE DATA  
 INTERFACE APPROVING THE PUBLICATION OF THE **CONTENT** BEFORE  
 TRANSMISSION OF THE **CONTENT** TESTING THE **CONTENT** OF THE DATA  
 INTERFACE 70065308 Figure 7070/129 GENERATING A CURRICULUM OF  
**COURSE** OFFERINGS ALLOWING THE SELECTION OF THE **COURSE**  
 OFFERINGS EDUCATING USERS OVER A NETWORK 1 7106 DISPLAYING A  
 STATUS OF THE EDUCATION OF THE USERS INCLUDING AT LEAST ONE OF  
 THE **COURSES** COMPLETED AND SCORES FOR THE **COURSES**  
 COMPLETED 5310 Figure 7171/129/ 7200 ALLOWING A USER TO REVIEW  
 EDUCATIONAL PROGRAM OFFERING 7201 PROMPTING THE USER TO ENTER  
 USER INDICIA Y RECEIVING... ...OF APPLICATION AND SYSTEM 7602 DATA  
 BASED ON THE USER VERIFICATION DATA y ENABLING VIRTUAL PRIVATE  
 NETWORKING 7604 Figure 76531476/129n CACHING **CONTENT** OF A  
 NETWORK 1 7702 PROVIDING APPLICATION PROXY SERVICES ON THE  
 NETWORK- - - -----MANAGING RESOURCES OF THE  
 NETWORK MANAGING NETWORK OBJECTS ON THE NETWORK 77068...  
 ...CAPABILITIES IN THE NETWORK FRAMEWORK ENABLING NETWORK  
 FRAMEWORK BROWSING IN THE NETWORK  
 FRAMEWORK/, @ @, ..., j 1 OUTPUTTING ANSWERS TO FREQUENTLY ASKED  
 QUESTIONS RELATING TO THE 7906 **CONTENT**-RELATIED WEB  
 APPLICATION SERVICES 1 79 8 PROVIDING NEWS READER CAPABILITIES IN  
 THE NETWORK FRAMEWORK 1 AFFORDING CHAT ROOM CAPABILITIES IN  
 THE NETWORK FRAMEWORK 7910... OVER THE NETWORK FRAMEWORK 5812  
 Figure 8181/129/ 8200 PROVIDING LOCATOR CAPABILITIES OVER A NETWORK  
 FRAMEWORK TRANSMITTING AT LEAST ONE OF STREAMING VIDEO AND  
**AUDIO** DATA 8202 OVER THE NETWORK FRAMEWORK 8204 LOGGING  
 EVENTS OVER THE NETWORK FRAMEWORK PASSIVELY MANAGING USER  
 PROFILE INFORMATION OVER THE 8206 NETWORK FRAMEWORK 5326  
 Figure... THE DELIVERED CONTENTS ON THE DISPLAY Figure  
 9692/12997100 Identification 1 1 Customer 9712 v Selection 9714 1 nforma tio InClapt:u  
 Ireji% **Content** Catalog 9732971 EMatchin Customer 9718 Acquisition **Content** Merge &  
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 CustomerRetentionInteractive , 9702 Figure 97 Marketing, 970097149710 9712 1 DATA  
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INFORMATIONzwz zw 0z0PRODUCTS GRAPHIC10104Figure 10110200SITE  
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**CONTENTDYNAMICCONTENTAREAS**10204DCA2@/ 10206DCA3Figure  
102HTML TEMPLATE95/129MONITORING OPERATION OF ENTITIES  
SELECTED FROM THE 10402GROUP CONSISTING OF SERVER PROCESSES,  
DISK  
SPACE,MEMORYAVAILABILITY,CPUUTILIZATION,ACCESSTIMETOASERVER  
, AND A NUMBER OF CONNECTIONS IN AN E-  
COMMERCESYSTEM10404UPDATING ITEIVIS SELECTED FROM THE GROUP  
CONSISTING OFMERCHANDISING **CONTENT**, CURRENCY EXCHANGE  
RATES, TAXRATES, AND PRICING IN THE E-COMMERCE SYSTEM  
ATPREDETERMINED INTERVALS10406SYNCHRONONG EXTERNAL DATA  
STORED SEPARATELY FROMTHE ECOMMERCE SYSTEM...

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7/K/64 (Item 26 from file: 349)  
DIALOG(R)File 349: PCT FULLTEXT  
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Patent				19

### Detailed Description:

...for affording a network-based supply chain framework in  
accordance with an embodiment of the present invention;  
Figure 4 is a chart illustrating the relations **between** benefit areas and components of the  
eCommerce Market Space in accordance with an embodiment of the present invention;  
Figure 5 is a schematic illustration of the relationship **between** areas of core competence  
of both operators and manufacturers for creating an environment for new business  
relationships in  
accordance with an embodiment of the present...present invention for automatically  
generating a contract between an owner of software and a user of the software Figure 66  
is a flowchart illustrating the **content** channels-related web application services in  
accordance with one embodiment of the present invention;  
Figure 67 is a flowchart illustrating the customer relationship management-related... ..of  
the customer relationship management-related web application services in accordance  
with one embodiment of the present  
invention;  
Figure 70 is a flowchart illustrating the **content** management and publishing-related web

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Figure 71 is a flowchart illustrating the education-related web application services in accordance

with one embodiment of the... ..the eCommerce Application Framework;

Figure 99 illustrates a simple personalization process;

Figure 100 is a graphical depiction of extents of personalization;

Figure 101 illustrates a **content** catalog that can be used to manage an enterprise's **content**; Figure 102 illustrates an exemplary template with three Dynamic **Content** Areas (DCAs) embedded within the template in accordance with a method of associating a rule and **content** to an interaction;

Figure 103 depicts a ShAR-E (Selection, Acquisition, Retention, and Extension) customer relationship model which addresses the changes in a shift to...pay system where billers initiate automatic debits from consumers' bank accounts; and

Figure 144 is a flow chart illustrating an open market environment for electronic **content**.

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## DESCRIPTION OF THE PREFERRED EMBODIMENTS

Figure 1 is a schematic diagram of one possible hardware implementation by which the present invention may be carried...applications which span from client to server and interoperate with existing computing resources.

Until recently, HTML has been the dominant technology used in development of **Web-based** solutions. However, FITMI, has proven to be inadequate in the following areas.

2T 9 Poor performance;

o Restricted user interface capabilities;

Can only produce static... ..Another technology that provides similar function to JAVA is provided by Microsoft and ActiveX Technologies, to give developers and Web designers wherewithal to build dynamic **content** for the Internet and personal computers. ActiveX includes tools for developing animation, 3-D virtual reality, video and other multimedia **content**. The tools use Internet standards, work on multiple platforms, and are being supported by over 100 companies. The group's building blocks are called ActiveX...channels into a DS3. Presently, most networks use a single multiplexer termed an MI 3, which combines twenty-eight DSI channels into a DS3. Of **course**, one of the key attributes of these previous multiplexer designs is that they permit DS 1 signals to be timed independently, i.e. asynchronous multiplexing. Bits... ..by synchronous multiplexing in SONET to eliminate the need to backhaul traffic to central hubs. Thus, at each switching office, the SONET transport node directly **accesses** the required time slots in the bit stream through the use of modified AddDrop Multiplexers (ADM). The SONET ring topology permits the creation of highly...appropriate destination.

Packet switching networks are also used which combine burst type data with the more continuous types of information such as voice, high quality **audio**, and motion video.

Commercialization of voice, video and **audio** transmission makes it desirable to be able to connect packets to multiple destinations, called packet broadcasting. For example, a broadcast

video service such as pay...many access technologies, e.g. wireless to cable phone services, web browsing from wireless devices etc.

The present invention maps a **course** for the network evolution from circuit to packet switched technology using a migratory approach in which the network becomes a hybrid circuit and packet... and features are the CLASS family of services (Call waiting, Call forwarding, Conference calling, Call rejection), enhanced call routing, Number Portability, Calling Card Services, and **Audio** delivered Information Services (e.g. travel, stocks and weather).

These IN capabilities are enabled by devices such as SCP, STP, SSP and ET in the...based on Priority, Cost, Termination Location

- Media and Application requirements ( Voice Telephone to Video Telephone, Multi-point, text to speech, Fax to E-mail etc. )

- **Content** Separation (Example: Tells the intelligent peripheral and protocol converter to separate the **Audio** stream from the data and video stream on an H.32x call; It may also instruct the protocol converter to process the stream so as to enable this **audio** stream to be fed to a destination which supports traditional

analog voice hence the G.728/9 **content** from the H.32x session would be converted first to AD/PCM and then sent to a Class 5 circuit based switch and terminated on...internet access. Thus in the "NGN" scenario for cable networks, cable will provide a new access mechanism for IP services, while simultaneously transport video **content** using the current video

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line IP devices.

The digital network segment that interfaces with the "NGN" comprises of a coaxial cable local loop which... based services. As the "New Core" matures and enhances in capabilities (probably 10 years away), such that it can provide high speed real-time video **content** (to provide same quality as cable), it can be envisaged that the cable will become an entirely IP access mechanism. Unlike all wire-line... improved to deliver higher resolution digital media over the cable infrastructure using NGN and CORE delivery mechanisms. The network becomes transparent and the applications and **content** drive the creativity of the service creation process. The PSTN like services will be delivered to devices connected via cable access just like they...for a private VNET customer. These records are only generated at switches or systems that have the capability of performing operator services or network **audio** response system (NARS) functions. The formats of the two (2) records are identical except for some

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more detail below.

Figures 36 and 37 collectively...and final, check 3704 made on a call 3602 by a switch 1206-1210 determines if the call 3602 is an enhanced voice service/network **audio**

response system (EVS/NARS) call. An EVS/NARS is an **audio** menu system in which a customer makes selections in response to an automated menu via her telephone key pad. Such a system includes a NARS switch on which the **audio** menu system resides. Therefore, during an EVS/NARS call 3602, the NARS switch 1206-1210 records the customer's menu selections in an expanded record... ..that is, they are offsets from Turnpoint 1 that a particular turnpoint occurred. All of the turnpoint fields must be filled in with "O's" **prior** to any data being recorded.

Therefore, if a turnpoint occurs, its count is one (1) or greater. Additionally, turnpoint counters, not including Turnpoint 1, do...are referenced throughout this document, summaries of the relevant standards are listed below for reference.

ITU G.711 Recommendation for Pulse Code Modulation of 3kHz **Audio** Channels.

ITU G.722 Recommendation for 7kHz **Audio** Coding within a 64kbit/s channel.

ITU G.723 Recommendation for dual rate speech coder for multimedia communication transmitting at 5.3 and 6.3...Central Office (CO) Switch to LEC CO, but not from end to end. The analog local loop transmits an analog signal, not 64 Kbps digitized **audio**. One of these analog local loops typically exists as the "last mile" of each of the telephone network circuits to attach the local telephone of...The Fault Management Process 4500 begins with a transmitting step 4502. In step 4502, data is transmitted over the hybrid network, including video and mixed **audio** information. The data transmission generally makes full use of the hybrid networks mixed circuit-switched and packet-switched components. As discussed

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In a circuit...the normal

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Integrated IP Telephony User Interface

One embodiment of the present invention allows a user of a web application to communicate in an **audio** fashion in-band without having to pick up another telephone. Users can click a button and go to a call center through a hybrid network...centers on the automated discovery of new facts and underlying relationships in the data. The term "data mining" comes from the idea that the raw **material** is the business data, and the data mining algorithm is the excavator, shuffling through the vast quantities of raw data looking for the valuable nuggets...generation of an Internet architecture framework like the one shown in Figure 53 to support various features such as an electronic commerce component 5300, a **content** channels component 5302, an administrative component 5304, a customer relationship management component 5306, a **content** management and publishing services component 5308, an education related services component 5310, or a web customer service component 5312.

The present invention provides a new... ..of web architecture framework (called 'WAF' in this document) that secures, administers, and audits electronic information use. WAF also features fundamentally important capabilities for managing **content** that travels "across" the "information highway." These capabilities comprise a nights protection

solution that serves all electronic community members. These members include **content** creators and distributors, financial service providers, end-users, and others. WAF is the first general purpose, configurable, transaction control/rights protection solution for users...standards are referenced throughout this document, summaries of the relevant standards are listed below for reference.

ITU G.711 Recommendation for Pulse Code Modulation of 3 kHz Audio Channels.

ITU G.722 Recommendation for 7 kHz **Audio** Coding within a 64 kbit/s channel.

ITU G.723 Recommendation for dual rate speech coder for multimedia communication transmitting at 5.3 and 6... ...Point-to-Point Protocol

MPEG Motion Pictures Expert Group, a standards body under the International Standards Organization (ISO), Recommendations for compression of digital Video and **Audio** including the

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SLIP Serial Line Internet Protocol

RSVP Resource Reservation Setup Protocol

UDP User Datagram Protocol

The popularity of the TCP/T protocols on... ...Central Office (CO) Switch to LEC CO, but not from end to end. The analog local loop transmits an analog signal, not 64 Kbps digitized **audio**. One of these analog local loops typically exists as the "last mile" of each of the telephone network circuits to attach the local telephone of...for the purposes of the present invention are called "control information." WAF control information may be specifically associated with one or more pieces of electronic **content** and/or it may be employed as a general component of the operating system capabilities of a WAF installation.

WAF transaction control elements reflect and enact **content** specific and/or more generalized administrative (for example, general operating system) control information. WAF capabilities which can generally take the form of applications (application models... ...with capability parameter data to reflect the elements of one or more express electronic agreements between WAF participants in regards to the use of electronic **content** such as commercially distributed products. These control capabilities manage the use of, and/or auditing of use of, electronic **content**, as well as reporting information based upon **content** use, and any payment for said use. WAF capabilities may "evolve" to reflect the requirements of one or more successive parties who receive or otherwise contribute to a given set of control information. Frequently, for a WAF application for a given

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Normally the party who creates a WAF **content** container defines the general nature of the WAF capabilities that will and/or may apply to certain electronic information. A WAF **content** container is an object that contains both. **content** (for example, commercially distributed electronic information products such as computer software programs, movies, electronic publications or reference **materials**, etc.) and certain control information related to the use of the object's **content**. A creating party may make

a WAF container available to other parties. Control information delivered by, and/or otherwise available for use with, WAF **content** containers comprise (for commercial **content** distribution purposes) WAFF control capabilities (and any associated parameter data) for electronic **content**. These capabilities may constitute one or more "proposed" electronic agreements (and/or agreement functions available for selection and/or use with parameter data) that manage the use and/or the consequences of use of such **content** and which can enact the terms and conditions of agreements involving multiple parties and their various rights and obligations.

A WAF electronic agreement may... process during which terms and conditions are "evaluated" by certain WAF participant control information that assesses whether certain other electronic terms and conditions attached to **content** and/or submitted by another party are acceptable (do not violate acceptable control information criteria). Such an

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When another party (other than the first applier of rules), perhaps through a negotiation process, accepts, and/or adds to and/or otherwise modifies, "in place" **content** control information, a WAF agreement between two or more parties related to the use of such electronic **content** may be created (so long as any modifications are consistent with senior control information). Acceptance of terms and conditions related to certain electronic **content** may be direct and express, or it may be implicit as a result of use of **content** (depending, for example, on legal requirements, previous exposure to such terms and conditions, and requirements of in place control information).

WAFF capabilities may be employed... more WAFF capabilities may be present at a WAF installation, and certain WAF agreements may have been entered into during the registration process for a **content** distribution application, to be used by such installation for securely controlling WAF **content** usage, auditing, reporting and/or payment. Similarly, a specific WAF participant may enter into a WAF user agreement with a WAF **content** or electronic appliance provider when the user and/or her appliance register with such provider as a WAF installation and/or user. In such events... certain WAFF methods are employed, for example in a certain sequence, in order to be able to use all and/or certain classes, of electronic **content** and/or WAF applications.

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#### COMMERCE-RELATED WEB APPLICATION SERVICES

One embodiment of the present... delivery for one or more of the ordered products and services may be provided in operation 5418.

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Through use of WAFs control system, traditional **content** providers and users can create electronic relationships that reflect traditional, non-electronic relationships. They can shape and modify commercial relationships to accommodate the evolving needs of, and agreements among, themselves. WAF does not require electronic **content** providers and users to modify their business practices and personal preferences to conform to a metering and control application program that supports limited, largely fixed functionality. Furthermore, WAF permits participants to develop business models not

feasible with non-electronic commerce, for example, involving detailed reporting of **content** usage information, large numbers of distinct transactions, at hitherto infeasibly low price points, "pass-along" control information that is enforced without involvement or advance knowledge of the participants, etc.

The present invention allows **content** providers and users to formulate their transaction environment to accommodate.

- (1) desired **content** models, **content** control models, and **content** usage information pathways,
- (2) a complete range of electronic media and distribution means,
- (3) a broad range of pricing, payment, and auditing strategies,
- (4) very... ..of users related to information regarding their usage of electronic information and/or appliances,
- (2) societal policy such as laws that protect rights of **content** users or require the collection of taxes derived from electronic transaction revenue, and
- (3) the proprietary and/or other rights of parties related to ownership... ..of commercial relationships that form, over time, a network of interrelated agreements representing a value chain business model. This is achieved in part by enabling **content** control information to develop through the interaction of (negotiation between) securely created and independently submitted sets of **content** and/or appliance control information. Different sets of **content** and/or appliance control information can be submitted by different parties in an electronic business value chain enabled by the present invention. These parties create... ..deliverable, component based control information allows efficient interaction among control information sets supplied by different parties.

WAF permits multiple, separate electronic arrangements to be formed **between** subsets of parties in a WAF supported electronic value chain model. These multiple agreements together comprise a WAF value chain "extended" agreement. WAF allows such constituent electronic agreements, and therefore overall WAF extended agreements, to evolve and reshape over time as additional WAF participants become involved in WAF **content** and/or appliance control information handling. WAF electronic agreements may also be extended as new control information is

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shared **content**.

A significant facet of the present invention's ability to broadly support electronic commerce is its ability to securely manage independently delivered WAF component objects... ..containing one or more methods, data, or load module WAF components). This independently delivered control information can be integrated with senior and other pre-existing **content** control information to securely form derived control information using the negotiation mechanisms of the present invention. All requirements specified by this derived control information must be satisfied **before** WAF controlled **content** can be **accessed** or otherwise used. This means that, for example, all load modules and any 15@

mediating data which are listed by the derived control information as... ..management. This rationalization stems from the reusability of control structures and user interfaces for a wide variety of transaction management related activities. As a result, **content** usage control, data security, information auditing, and electronic financial activities, can be supported with tools that are reusable, convenient, consistent, and familiar. In addition, a...through the use of WAF can be enforced reliably. These agreements may have both "dynamic(inverted exclamation mark)c" transaction management related aspects, such as **content** usage control information enforced through budgeting, metering, and/or reporting of electronic information and/or appliance use, and/or they may include "static" electronic assertions... ..using the system to assert his or her agreement to pay for services, not to pass to unauthorized parties electronic information derived from usage of **content** or systems, and/or agreeing to observe copyright laws. Not only can electronically reported transaction related information be trusted under the present invention, but payment... ..from an electronic account: (for example, an account securely maintained by a user's WAF installation secure subsystem) based upon usage of WAF controlled electronic **content** and/or appliances (such as governments, financial credit providers, and users).

WAF allows the needs of electronic commerce participants to be served and it can...  
...Electronic commerce technologies that do not, as the present invention does.

support a broad. range of possible, complementary revenue activities,  
offer a flexible array of **content** usage features most desired by customers, and  
exploit opportunities for operating efficiencies,  
will result in products that are often intrinsically more costly and less appealing... ..to the present invention include.

(a) integration into the fundamental control environment of a broad. range of electronic  
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(b) modular data structures;

(c) generic **content** model;

(d) general modularity and independence of foundation architectural components;

(e) modular security structures;

(f) variable length and multiple branching chains of control; and

(g... ..and models, and where such model control schemes can "evolve" as control information passes through the WAF installations of participants of a pathway of WAF **content** control information handling.

## CATALOG CAPABILITIES

Displays linkable pictures and text

Customizes rendering based on user preferences

Provides multiple ways to traverse the catalog (ease of navigation)

Shows Quick-buy link throughout catalog

Incorporates multiple languages and localized **content**

Integrates to centralized publishing for fresh **content**

Displays guest view of catalog (default set)

Creates personal catalog

Referring to operation 5400 of Figure 54, one embodiment of the electronic commerce component of... ..personalized settings are used each time the display catalog is opened by that particular user.

The display format may also be customized to display localized **content**, such as by being based on the location of the user. Text may also be displayed in a language selected by the viewer.

PRODUCT DETAILS...he or she likes it, he or she

is provided

takes it into the shopping basket. During the shopping, he or she examines the **content** of the shopping basket as required to check the item scheduled to purchase and the pay amount of the items. Accordingly, it is not necessary...self-service terminal system identified as model NCR 5682, incorporates the data gathering and transaction processing capabilities of conventional automated teller machines with video, graphics, **audio** and printer operations. Interactivity with the customer is governed by a software system through the use, for example, of a keyboard or an infrared touch...are completed. The central data processing center is also remotely linked to institutions, such as insurance companies, serviced by the system to keep the institution **updated** on completed sales of services offered by that institution. As noted, the terminals in this system are on-line with the central data processing center...the user for performing some type of action such as winning a contest or completing a marketing survey. Third, an online service may charge a **content** provider for placing certain information on the online service. For example, a **content** provider can be charged for placing an advertisement on the online service.

Finally, a **content** provider can be paid by the online service for providing information that users may wish to access, can be provided on a for-fee basis. Conversely, an online service provider may wish to pay third party **content** providers for placing useful **material** on the online service.

Thus, when creating a publicly accessible online system, it is desirable to include the ability to define fee structures for accessing...to a "captive audience" that many or most end users remain tuned to the same signal even when the main program to which they are **listening** or viewing is interrupted by advertisements.

Another example of advertising mixed with information dissemination is the use of scrolled text at the bottom of... ..the remainder of the screen is occupied by advertisements, "infomercials" and the like.

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Most, and perhaps all such, examples of mixing advertisements with information **content** are based on systems in which the end user has actively elected to view or **listen** to a program or to otherwise receive information. Furthermore, in virtually all such systems or media, the juxtaposition or placement of advertisements and information **content** is explicitly programmed or determined by human beings working as "editors" or in a

similar **content** and/or presentation editing capacity.

Distributing information via the Internet or other publicly accessible computer communication networks has been largely unsupported by advertising revenues due to the lack of good mechanisms for mixing advertising and information **content** in such a way as to be acceptable to both end users and advertisers. There are, of **course**, some exceptions where advertising/**content** mixtures from other contexts, such as newspapers and television, have been simply replicated on the Internet. For instance, some newspapers have been "published" at least in part on the Internet, and include advertisements along with information **content**. In fact, some newspapers sell advertising space on an associated World Wide Web (WWW) site, which often includes extensive listings of certain types of advertisements... food and grocery, personal care, hardware and appliances, means that a retailer may have thousands of models or varieties of goods in inventory, each, of **course**, with a concomitant price. The result of this multitude of consumer products is that the control and consistency of pricing has assumed increasing importance, especially...in the stock brokerage area, will provide market pricing of stocks.

While these systems can accommodate a continually changing price situation, the actual pricing, of **course**, is independent of the system, i.e., pricing is controlled by the stock market.

The current wide-ranging use of computer systems provides a relatively large potential market to providers of electronic **content** or information. These providers may include, for example, advertisers and other information publishers such as newspaper and magazine publishers. A cost, however is involved with... Thus, it would be beneficial to, provide a system which allows individual users to, control the amount of electronic advertising they receive with their electronic **content**.

In addition, providers of electronic advertisements would be able to subsidize the cost of electronic **content** for end users. The amount of this subsidy would be dependent on the amount of electronic advertising which is consumed by the end users and... inverted exclamation mark) it would be beneficial to provide a system which allows the providers of electronic advertisements to provide advertising-based subsidization of electronic **content** consumption, based upon the perceived quality of consumers who have specifically chosen to consume these advertisements, cognizant of the fact that consuming these advertisements will subsidize their electronic **content** consumption fees.

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Collects user information for order processing (shipping, billing)

Recaps order for confirmation (shipping, price, availability)

Allows for order maintenance (qty, product, shipping...publishers, and other distributors, of electronic information,

(2) financial service (e.g. credit) providers,

(3) users of (other than financial service providers) information arising from **content** usage such as **content** specific

demographic information and user specific descriptive information. Such users may include market analysts, marketing list compilers for direct and directed marketing, and government agencies,

(4) end users of **content**,

(5) infrastructure service and device providers such as telecommunication companies and hardware manufacturers (semiconductor and electronic appliance and/or other computer system manufacturers) who receive... ..to support: the various underlying agreements between parties that comprise this extended agreement. These agreements can define important electronic commerce considerations including.

(1) security,

(2) **content** use control, including electronic distribution,

(3) privacy (regarding, for example, information concerning parties described by medical, credit, tax, personal,

and/or of other forms; of confidential information),

(4) management of financial processes, and

(5) pathways of handling for electronic **content**, **content** and/or appliance control information, electronic **content** and/or appliance usage information and payment and/or credit.

WAF agreements may define the electronic commerce relationship of two or more parties of a... ..but such agreements may, at times, not directly obligate or otherwise directly involve other WAF value chain participants.

For example, an electronic agreement between a **content** creator and a distributor may establish both the price to the distributor for a creator's **content** (such as for a property distributed in a WAF container object) and the number of copies of this object that: this distributor may distribute to... ..in a three party agreement in which the end-user agrees to certain requirements for using the distributed product such as accepting distributor charges for **content** use and agreeing to observe the copyright rights of the creator. A third agreement might exist between the distributor and a financial clearinghouse that allows... ..separate (fourth) agreement directly with the clearinghouse extending credit to the end-user. A fifth, evolving agreement may develop between all value chain participants as **content** control information passes along its chain of handling. This evolving agreement can establish the rights of all parties to **content** usage information, including, for example, the nature of information to be received by each party and the pathway of handling of **content** usage information and related procedures. A sixth agreement in this example, may involve all

WAF agreements support evolving ("living") electronic agreement arrangements that can be modified by current and/or new participants through very simple to sophisticated "negotiations" between newly proposed **content** control information interacting with control information already in place and/or by negotiation between concurrently proposed **content** control information submitted by a plurality of parties. A given model may be asynchronously and progressively modified over time in accordance with existing senior

rules and such modification may be applied to all, to classes of, and/or to specific **content**, and/or to classes and/or specific users and/or user nodes. A given piece of **content** may be subject to different control information at different times or places of handling, depending on the evolution of its **content** control information (and/or on differing, applicable WAF installation **content** control information). The evolution of control information can occur during the passing along of one or more WAF control information containing objects, that is control... ..modified at one or more points along a chain of control information handling, so long as such modification is allowed. As a result, WAF managed **content** may have different control information applied at both different "locations" in a chain of **content** handling and at similar locations in differing chains of the handling of such **content**. Such different application of control information may also result from **content** control information specifying that a certain party or group of parties shall be subject to **content** control information that differs from another party or group of parties. For example, **content** control information for a given piece of **content** may be stipulated as senior information and therefore not changeable, might be put in place by a **content** creator and might stipulate that national distributors of a given piece of their **content** may be permitted to make 1 00,000 copies per calendar quarter, so long as such copies are provided to bona fide endusers, but may pass only a single copy of such **content** to a local retailers and the control information limits such a retailer to making no more than 1,000 copies per month for retail sales to end-users. In addition, for example, an end-user of such **content** might be limited by the same **content** control information to making three copies of such **content**, one for each of three different computers he or she uses (one desktop computer at work, one for a desktop computer at home, and one... ..or currency usage and administration capabilities,

(d) privacy protection for usage information a user does not wish to release, and  
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(e) "living" electronic information **content** disarrangement models that flexibly accommodate.

- (1) a breadth of participants,
- (2) one or more pathways (chains) for: the handling of **content**, **content** and/or appliance control information, reporting of **content** and/or appliance usage related information, and/or payment, (3) supporting an evolution of terms and conditions incorporated into **content** control information, including use of electronic negotiation capabilities,
- (4) support: the combination of multiple pieces of **content** to form new **content** aggregations, and (5) multiple concurrent models.

## ORDER STATUS AND HISTORY

Provides real-time order status (backorders)

Provides real-time shipping status

Provides real-time invoice...of following transactions. To properly track activity, a trade generates a (virtual and/or real) single trade ticket--with associated, and screen-displayed, reference number.

## CONTENT CHANNEL-RELATED WEB APPLICATION SERVICES

Options include monitoring a success rate of the downloading data and automatically transmitting the data that is transmitted based features greatly facilitate transactional dependent downloads.

#### PUSH TECHNOLOGY CAPABILITIES

Sends messages or **content** to customers proactively

Allows for delivery and receipt of custom applications developed in all major languages (i.e.

Visual Basic, C++, Java)

Receives, installs, and launches applications automatically without user intervention

Utilizes plug-ins allowing developers to personalize applications and **content**

Performs internal hardware and software audits

Delivers self-updating applications

Referring to operation 6602 of Figure 66, push-technology data is transmitted based on user specifications.

Preselected messages and **content** may be sent to customers proactively. Furthermore, applications could be received, installed, and launched automatically without user intervention. For example, a software update could be... ..of programming languages, such as VISUAL BASIC, C++, and JAVA, is allowed. Plug-ins may also be utilized to allow developers to personalize applications and **content**.

#### DISCUSSION FORUMS AND NEWSGROUPS

Securely handles all media types (e.g. graphics, **audio**, etc.)

Links to web pages for easy access to published documents

Facilitates discussions across multiple discussion groups

Finds information with search and notification tools

Allows... ..Operation 6604 of Figure 66 provides for a plurality of newsgroups to which users can subscribe.

Sending and receipt of all media types, including graphics, **audio**, streaming video, and the like is permitted. A user may also participate in discussions via email. Selected users or an

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An interface could be... ..be provided to search for information. Notification tools may inform a user of various events, such as when a particular discussion is going to occur.

#### CONTENT SUBSCRIPTIONS

Allows users to subscribe and unsubscribe for different services

Allows subscribers to set up **content** preferences (e.g. topics)

Allows users to subscribe third parties for services

The **content** channels component of the present invention allows users to subscribe and unsubscribe to different services such as, for example, newsletters, travel clubs, and the like.

Users would also be allowed to limit the **content** of the **materials** received to their particular preference. For example, a user would select several topics from a list of topics and would later receive information on the... ..selected services.

#### FREQUENTLY ASKED QUESTIONS

Displays static answers to popular questions

Dynamically generates questions and answers from a knowledge base

Tracks knowledge experts based on **content** authors and discussion forum participation

Referring to operation 6606 of Figure 66, the **content** channels component of the present invention would also include a component for displaying static answers to popular questions.

The questions and answers could be dynamically... ..Notifies users if another user is on-line

Provides free form discussion area

Allows for moderated chat sessions

Chat capabilities could be included in the **content** channels component of the present invention.

Note operation 6608 of Figure 66. Such capabilities would permit collaborative web browsing and URI, pasting, for such... ..outbound messages

Automates regular communication triggered by events

Tracks email responses for campaign management statistics

In operation 6610, shown in Figure 66, the **content** channels component of the present invention also permits generation of messages which may be sent to selected users at predetermined times or automatically upon occurrence... ..Other messages would be queued in mailboxes for response. All or selected messages may be stored to build a customer interaction history.

#### DYNAMIC RENDERING

Displays **content** and applications based on profile

Pulls **content** from multiple data sources: static, database, third party site

Matches **content** to users via configurable business rules

Allows custom template based publishing

The **content** channels component of the present invention also provides for generic and custom template based publishing by displaying selected **content** and applications based on the profile of a user. Note operation 6614 of Figure 66. **Content** is obtained from multiple data sources, including static, database, and third party sites. Optionally, the **content** may be matched to particular users via configurable business rules.

#### ADMINISTRATIVE AND FINANCIAL WEB APPLICATION SERVICES

Another embodiment of the present invention is provided for...be routed to certain destinations selected by the users submitting the resumes.

## SHAREHOLDER SERVICES

Provides personalized stock tickers

Displays corporate financial information

The **content** channels component of the present invention provides a customizable display including personalized stock tickers, links to corporate financial information, and an online brokerage service. Other... ..Accepts notification of legal questions or issues

Provides media kits

Allows users to register for branding usage

Legal notices and policies are displayed by the **content** channels component of the present invention. Legal questions and issues are accepted and stored for later reply. A user is also

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allowed to register... ..up in some accounting magazine. It might also compare what similar IT professionals from accounting fin-ns purchased.

## DYNAMICALLY FACILITATE COMMUNITIES OF INTEREST

Provides static **content** and applications to people with similar preferences or business needs Provides dynamic **content** and applications to people with similar preferences or business needs

Communities can be created by configurable business rules

The customer relationship management component of the present invention, in operation 6702, provides static **content** and applications to people with similar preferences and business needs.

Dynamic **content** is provided, as are applications, to people with similar preferences and business needs.

## MATCH WEB CONTENT TO SPECIFIC USER PROFILES

Permits cross- and up-sell of products to customers based on user profile

Offers personalized recommendations based on an individual's profile

Targets **content** and advertisements based on an individual's profile

Relates legacy databases and information to personal profile information

**Content** matching rules are defined by configurable business rules

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Uses metadata and business rules to match **content** to profiles

The customer relationship management component of the present invention pennits matching of web **content** and advertisements to specific user profiles. Note operation 6704 of Figure 67.

Personalized recommendations are made based on the profile of a user. Cross- and up-selling of products to users based on their profiles is also pen-nitted. Optionally, **content** matching rules are defined by configurable business rules. In the alternative, metadata and business rules match **content** to profiles. Also optionally, legacy databases and information may be related to personal profile information.

## CUSTOMER FEEDBACK AND SURVEYS

Automates creation and administration of online... ..she has registered. The registration

function is integrated with commerce functions to permit fee-based registration capabilities, such as permitting online registration via credit card.

## **CONTENT MANAGEMENT AND PUBLISHING-RELATED WEB APPLICATION SERVICES**

Stores current files along with past changes to documents, source code, and Web **content**

Assigns user-specific and project specific authorization for secure administration

Reconciles file changes from multiple users and prevents accidental code overwriting

Generates site maps

Maintains metadata for **content**

One embodiment of the present invention, illustrated in Figure 53 as component 5308, is identified

providing or affording a combination of **content** management and publishing-related web application services. In use, referring to Figure 70, **content** of a data interface, (inverted exclamation mark).e. a web-site, may be developed for **accessing** data on a network, (inverted exclamation mark).e. the Internet, **after** which such **content** is managed in operation. Note operations 7000 and 7002, respectively. Publishing of the **content** of the data interface is controlled by precluding transmission or publication of the **content** until approval in operation 7004. The **content** of the data interface may also be tested in operation 7006. For example, this may be accomplished by creating a staging and deployment environment in which the data interface is analyzed. Further features include "text-only" rendering and **content** workflow control.

As an option, the step of developing **content** of a data interface may be carried out by a data

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### **Controlling Electronic Content**

A fundamental problem for electronic **content** providers is extending their ability to control the use of proprietary information. **Content** providers often need to limit use to authorized activities and amounts. Participants in a business model involving, for example, provision of movies and advertising on optical discs may include actors, directors, script and other writers, musicians, studios, publishers, distributors, retailers, advertisers, credit card services, and **content** end-users.

These participants need the ability to embody their range of agreements and requirements, including use limitations, into an "extended" agreement comprising an overall electronic business model. This extended agreement is represented by electronic **content** control information that can automatically enforce agreed upon rights and obligations. Under WAF, such an extended agreement may comprise an electronic contract involving all business... that is commercial relationships regarding products and services can be shaped through the negotiation of one or more agreements between a variety of parties.

Commercial **content** providers are concerned with ensuring proper compensation for the use of their electronic information. Electronic digital information, for example a CD recording, can today be... Similarly, unauthorized copying and use of software

programs deprives rightful owners of billions of dollars in annual revenue according to the International Intellectual Property Alliance. **Content** providers and distributors have devised a number of limited function rights protection mechanisms to protect their rights. Authorization passwords and protocols, license servers, "lock/unlock" distribution methods, and non-electronic contractual limitations imposed on users of shrink-wrapped software are a few of the more prevalent **content** protection schemes. In a commercial context, these efforts are inefficient and

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limited solutions.

Providers of "electronic currency" have also created protections for their type of **content**. These systems are not sufficiently adaptable, efficient, nor flexible enough to support the generalized use of electronic currency. Furthermore, they do not provide sophisticated auditing...of electronically provided and/or stored information. WAF

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WAF may be used to migrate most non-electronic, traditional information delivery models (including entertainment, reference **materials**, catalog shopping, etc.) into an adequately secure digital distribution and usage management and payment context. The distribution and financial pathways managed by a WAF arrangement may include.

**content** creator(s),  
distributor(s),  
redistributor(s),  
client administrator(s),  
client user(s),  
financial and/or other clearinghouse(s),  
and/or government agencies.

These distributions... vary (inverted exclamation mark)ing business and/or data security models that can involve a broad range of participants at various "levels" of WAF **content** and/or **content** control information pathways of handling. Different **content** control and/or auditing models and agreements may be available on the same WAF installation. These models and agreements may control **content** in relationship to, for example, WAF installations and/or users in general; certain specific users, installations, classes and/or other groupings of installations and/or users; as well as to electronic **content** generally on a given installation, to specific properties, property portions, classes and/or other groupings of **content**.

Distribution using WAF may package both the electronic **content** and control information into the same WAF container, and/or may involve the delivery to an end-user site of different pieces of the same WAF managed property from plural separate remote locations and/or in plural separate WAF **content** containers and/or employing plural different delivery means. **Content** control information may be partially or fully delivered separately from its associated **content** to a user WAF installation in one or more WAF administrative objects. Portions of said control information may be delivered from one or more sources... or WAF compatible, certified secure remote locations.

WAF control processes such as metering, budgeting, decrypting and/or fingerprinting, may as relates to a certain user **content** usage activity, be performed in a user's local WAF installation secure subsystem, or said processes may be divided amongst plural secure subsystems which

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installation.

Delivery means for WAF managed **content** may include electronic data storage means such as optical disks for delivering one portion of said information and broadcasting and/or telecommunicating means for other... ..opaque.

WAF control information (e.g., methods) that collectively control use of WAF managed properties (database, document, individual commercial product), are either shipped with the **content** itself (for example, in a **content** container) and/or one or more portions of such control information is shipped to distributors and/or other users in separably deliverable "administrative objects." A... ..available remotely by telecommunication means).

Required methods (methods listed as required for property and/or appliance use) must, be available as specified if WAF controlled **content** (such as intellectual property distributed within a WAF **content** container) is to be used. Methods that control **content** may apply to a plurality ...more methods can be specified as required in order for a WAF installation and/or user to be able to use certain and/or all **content**. For example, a distributor of a certain type of **content** might be allowed by "senior" participants (by **content** creators, for example) to require a method which prohibits end-users from electronically saving decrypted **content**, a provider of credit for WAF transactions might require an audit method that records the time of an electronic purchase, and/or a user might... ..convey confidential, personal information regarding detailed usage behavior.

A farther feature of WAF provided by the present invention is that creators, distributors, and users of **content** can select from among a set of predefined methods (if available) to control container **content** usage and distribution functions and/or they may have the right to provide new customized methods to control at least certain usage functions (such "new... ..or one or more portions of objects or properties as desired and/or applicable) will be controlled. Each WAF participant in a WAF pathway of **content** control information may set methods for some or all of the **content** in a WAF container, so long as such control information does not conflict with senior control information already in place with respect to.

- (1) certain or all WAF managed **content**,
- (2) certain one or more WAF users and/or groupings of users,
- (3) certain one or more WAF nodes and/or groupings of nodes, and/or
- (4) certain one or more WAF applications and/or arrangements.

For example, a **content** creator's WAF control information for certain **content** can take

precedence over other subinitted WAF participant control information and, for example, if allowed by senior control information, a **content** distributor's control information may itself take precedence over a client administrator's control information, which may take precedence over an

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WAF control information may, in part or in full, (a) represent control information directly put in place by WAF **content** control information pathway participants, and/or (b) comprise control information put in place by such a participant on behalf of a party who does not directly handle electronic **content** (or electronic appliance) permissions records information (for example control information inserted by a participant on behalf of a financial clearinghouse or government agency). Such control...

### Claims:

...time to a server, and a number

of connections in a network-based supply chain;(b) updating items selected from the group consisting of merchandising **content**, currency exchange rates, tax rates, and pricing in the network-based supply chain at predetermined intervals;469and(e) altering the items based on... ..and a number of connections in a network-based supply chain;(b) a code segment that updates items selected from the group consisting of merchandising **content**, currency exchange rates, tax rates, and pricing in the network-based supply chain at predetermined intervals;(c) a code segment that synchronizes external data stored...a server, and a number of connections in a network-based supply chain;(b) logic that updates items selected from the group consisting of merchandising **content**, currency exchange rates, tax rates, and pricing in the network-based supply chain at predetermined intervals;(c) logic that synchronizes external data stored separately from...1`1 MEN Uliem Entitlement Service CG1 1 gN<SAPI 1 ISAPIEmail Tran rtSemicerYVeb Application ServicCommerce Content Channels Customer **Content** Mgmt & EducationRelationship Mgmt Publishing Servicios1 ContentDevelopmentIF Catalog Capabilities le User,Profile Mgmt [Curriculum(products SeNICOS) QUO (Pnce & Download Capabilities Chal Capabilities~s TonisZ~Zil@bility) (Real-time) (Active Profiling) Marketingjun. Dynamic **Content** M2 gement -i@ster loPush Tech ew a y Facilitalel FR"o Y] rge@ce=ges Com . fCapabilities@ T ...specific user profilesCnewsgroups) email inCalculations- - - - - Tmsaction Processil F-Uy-na-m-(inverted exclamation mark)c 7e-nJe-n-ng 1 Customer Feccibaiq **Content** Workflow FCompam Products 1 1 Capabilities (physlw **Content** Subscrip@o@ns ed S E Mining Accellectronic) umeysServices "epmupb'liMei nga)s1 t:iecwoniCLicense FAOsFiNeedsAu~en7t1 Distribution & r Sven7Calendanng **Content** Review &Buyer Assistant Mananement Registration Testing ToolsHistory Admiffistrativo Transiation C;ai@@& Miscellaneous [ijrehol-er @ServicesAdy rusement next--only Rendennng@til)n Lead Genembon... ..Financials Integmti]on ERP integradon Capabilities (Content, Centers ' 1 [:@@5324 en ne,,,t,@ Training) Streaming deo & 1Applimbon Data HumanResources (Fui t1meont lpaymet **Audio** CapatlillillesShurago integration 3rd arlDirectory Services Management & Operations validabon, Mana configuration Web App,e oi Base la Developmel& Storage Data o Capabilitest...IDENTIFICATIONFigure 656408PpnDOWNLOADING

DATA TRANSMITTING DATA BASED ON USER SPECIFICATIONS PROVIDING  
 A PLURALITY OF NEWS GROUPS TO WHICH USERS  
 SUBSCRIBE; OUTPUTTING ANSWERS TO FREQUENTLY ASKED QUESTIONS REL  
 ATING TO THE 6606 **CONTENT**-RELATED WEB APPLICATION SERVICES 1  
 6b08 ENABLING REAL TIME COMMUNICATION BETWEEN A PLURALITY OF  
 THE USERS; COORDINATING THE TRANSMISSION OF ELECTRONIC MAIL  
 66106612... .. ITEM EACH TIME A USER USES THE SYSTEM LOGGING THE  
 USER'S CURRENT ACTIVITIES AND ENTERING THEM 6903 INTO THE  
 DATABASE Figure 6968107000 DEVELOPING **CONTENT** OF A DATA INTERFACE  
 FOR ACCESSING DATA ON A NETWORK 1 -- 02 MANAGING THE **CONTENT** OF  
 THE DATA INTERFACE APPROVING THE PUBLICATION OF THE **CONTENT**  
 BEFORE TRANSMISSION OF THE **CONTENT** ", TESTING THE **CONTENT** OF  
 THE DATA INTERFACE 70065308 Figure 7071n GENERATING A CURRICULUM  
 OF **COURSE** OFFERINGS; 102 ALLOWING THE SELECTION OF THE **COURSE**  
 OFFERINGS 04 EDUCATING USERS OVER A NETWORK 7106 DISPLAYING A  
 STATUS OF THE EDUCATION OF THE USERS INCLUDING AT LEAST ONE OF  
 THE **COURSES** COMPLETED AND SCORES FOR THE **COURSES**  
 COMPLETED 5310 Figure 717200 ALLOWING A USER TO REVIEW  
 EDUCATIONAL PROGRAM OFFERINGS 7201 PROMPTING THE USER TO ENTER  
 USER INDICIA 7202 RECEIVING THE USER... .. TO AT LEAST ONE OF  
 APPLICATION AND SYSTEM DATA BASED ON THE USER VERIFICATION  
 DATA 7604 ENABLING VIRTUAL PRIVATE NETWORKING Figure  
 76531477n CACHING **CONTENT** OF A NETWORK 7702 PROVIDING  
 APPLICATION PROXY SERVICES ON THE NETWORK 1 (U4 MANAGING  
 RESOURCES OF THE NETWORK; 1r MANAGING NETWORK OBJECTS ON THE  
 NETWORK... .. ELECTRONIC MAIL CAPABILITIES IN THE NETWORK  
 FRAMEWORK ENABLING NETWORK FRAMEWORK BROWSING IN THE  
 NETWORK FRAMEWORK/. @ @',. @ @ OUTPUTTING ANSWERS TO  
 FREQUENTLY ASKED QUESTIONS RELATING TO THE 7906 **CONTENT**-  
 RELATED WEB APPLICATION SERVICES 9 8 PROVIDING NEWS READER.  
 CAPABILITIES IN THE NETWORK FRAMEWORK AFFORDING CHAT ROOM  
 CAPABILITIES IN THE NETWORK FRAMEWORK 7910 @ 12 ENABLING...  
 ...CENTERS OVER THE NETWORK FRAMEWORK 5812 Figure 818200 PROVIDING  
 LOCATOR CAPABILITIES OVER A NETWORK  
 FRAMEWORK 8202 TRANSMITTING AT LEAST ONE OF STREAMING VIDEO  
 AND **AUDIO** DATA OVER THE NETWORK FRAMEWORK LOGGING EVENTS  
 OVER THE NETWORK FRAMEWORK 8204 PASSIVELY MANAGING USER  
 PROFILE INFORMATION OVER THE 8206 NETWORK FRAMEWORK 5326 Figure  
 82... THE USER TO SELECTIVELY POSITION THE DELIVERED CONTENTS ON  
 THE DISPLAY Figure 9697109712 Ident 7ffic 7alio 771. Customer 730- Information  
 Capture Selection 971497 1 6 **Content** Ca 9732 Matching Logic Customer 9718  
 Acquisition **Content** Merge 9720 9734 Administration Customer Personalization  
 Extension 97369700 Customer Retention Interactive 9702 Figure 97  
 Marketing 970097149710 9712 1 DATA WAREHOUSE **CONTENT**  
 CATALOG IDENTIFICATION INFORMATION www Z USER 2N CAPTURE PROFILES  
 wQSi MATCHING z HTML PAGES INFORMATION User cl LOGIC wsi z z... .. 0

3unIdVOcow 1 NOLVINdO-4NIw3cliElAlIVd311 3AlIVd3lIU66 V066 ZO66  
00666ZI/t,6SZZZC/Oosfl/ljd Z806910 OM10102 10106**CONTENT**  
CATALOGzLU><w w(D c< zz HTMLPAGES INFORMATION< iz2 wF-- /7777z zw  
0z0PRODUCTS GRAP10104Figure 10110200,,@-@@SITE  
NAVIGATION10202DCA1DYNAMIC STATIC  
**CONTENTCONTENT**AREAS10204DCA210206DCA3Figure 102HTML  
TEMPLATEMONITORING OPERATION OF ENTITIES SELECTED FROM THE  
10402GROUP CONSISTING OF SERVER PROCESSES, DISK  
SPACE, MEMORY AVAILABILITY, CPU UTILIZATION, ACCESS TIME TO A SERVER  
, AND A NUMBER OF CONNECTIONS IN AN E-COMMERCE SYSTEM UPDATING  
ITEMS SELECTED FROM THE GROUP CONSISTING OF  
10404MERCHANDISING **CONTENT**, CURRENCY EXCHANGE RATES,  
TAX RATES, AND PRICING IN THE E-COMMERCE, SYSTEM  
AT PREDETERMINED INTERVALS 10406 SYNCHRONIZING EXTERNAL DATA  
STORED SEPARATELY FROM THE E-COMMERCE SYSTEM...

7/K/65 (Item 27 from file: 349)  
DIALOG(R) File 349: PCT FULLTEXT  
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Country	Number	Kind	Date
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**Claims:**

...INFORMATION  
zUjz zUj 0z0PRODUCTS GRAPH10104Figure 10110200SITE NAVIGATION @D Z3  
ZJ10202DCA1STATIC  
**CONTENTDYNAMICCONTENT**AREAS10204DCA210206DCA3Figure 102HTIVIL  
TEMPLATE95/129MONITORING OPERATION OF ENTITIES SELECTED FROM  
THE 10402GROUP CONSISTING OF SERVER PROCESSES, DISK... ...TIME TO  
A SERVER, AND A NUMBER OF CONNECTIONS IN AN E-  
COMMERCE SYSTEMrUPDATING ITEMS SELECTED FROM THE GROUP  
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AT PREDETERMINED INTERVALS 10406 SYNCHRONIZING EXTERNAL DATA  
STORED SEPARATELY FROM THE E-COMMERCE SYSTEM...

7/K/66 (Item 28 from file: 349)  
DIALOG(R) File 349: PCT FULLTEXT

Country	Number	Kind	Date
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### Detailed Description:

...Figure 136;

1 5

Figure 138 is the left portion of a flow chart for the data processing of block 13714 of Figure 137 for **updating** the inventory cost (average price per unit of bandwidth AVCST(BWTH)) of the bandwidth BWTH and the running profit PR(BWTH) realized from the execution environment for electronic **content**.

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### DESCRIPTION OF THE PREFERRED EMBODIMENTS

Figure 1 is a schematic diagram of one possible hardware implementation by which the present invention may be...Another technology that provides similar function to JAVA is provided by Microsoft and ActiveX Technologies, to give developers and Web designers wherewithal to build dynamic **content** for the Internet and personal computers. ActiveX includes tools for developing animation, 3-D virtual reality, video and other multimedia **content**. The tools use Internet standards, work on multiple platforms, and are being supported by over 1 00 companies. The group's building blocks are called...DS2 channels into a DS3. Presently, most networks use a single multiplexer termed an M13, which combines twenty-eight DSI channels into a DS3. Of **course**, one of the key attributes of these previous multiplexer designs is that they permit DS I signals to be timed independently, i.e. asynchronous multiplexing...and backbone connections. The use of packet switching systems, such as bridges and routers, to connect these LANs into global internets is now widespread. An **internet** router must be capable of processing packets based on many different protocols, including IP, IPX, DECNET, AppleTALK, OSI, SNA and others. The complexities of building...appropriate destination.

Packet switching networks are also used which combine burst type data with the more continuous types of information such as voice, high quality **audio**, and motion video. Commercialization of voice, video and **audio** transmission makes it desirable to be able to connect packets to multiple destinations, called packet broadcasting. For example, a broadcast video service such as pay...was once a distinct set of services (voice, video, wireless) on separate parallel networks, on one integrated packet based network. There will still be separate **access** technologies (wireless, satellite, cable, wire-line) to **access** these services, but the **access** networks will all use a common "New Core" network and its capabilities. The services will be interoperable across various access technologies, and users will freely use services that cross many access technologies, e.g. wireless to cable phone services, web browsing from wireless devices etc.

The present invention maps a **course** for the network evolution from circuit to packet switched technology using a migratory approach in which the network becomes a hybrid

circuit and packet topology... ..and features are the CLASS family of services (Call waiting, Call forwarding, Conference calling, Call rejection), enhanced call routing, Number Portability, Calling Card Services, and **Audio** delivered Information Services (e.g. travel, stocks and weather).

These IN capabilities are enabled by devices such as SCP, STP, SSP and EIP in the...on Priority, Cost, Termination Location

Media and Application requirements ( Voice Telephone to Video Telephone, Multi-point, text to speech, Fax to E-mail etc. )

0 **Content** Separation (Example: Tells the intelligent peripheral and protocol converter to separate the **Audio** stream from the data and video stream on an H.32x call; It may also instruct the protocol converter to process the stream so as to enable this **audio** stream to be fed to a destination which supports traditional

analog voice hence the G.728/9 **content** from the H.32x session would be converted first to AD/PCM and then sent to a Class 5 circuit based switch and terminated on...speed internet access. Thus in the "NGN" scenario for cable networks, cable will provide a new access mechanism for IP services, while simultaneously transport video **content** using the current video broadcast technology. Thus the IP enabled devices attached to the "NGN" cable infrastructure can take advantage of all the new components... ..based services. As the "New Core" matures and enhances in capabilities (probably 10 years away), such that it can provide high speed real-time video **content** (to provide same quality as cable), it can be envisaged that the cable will become an entirely IP access mechanism. Once like all wire-line access becomes an IP access mechanism).

Then the broadcast video **content** will be delivered to IP enabled cable attached devices just like any other rich media will be delivered over the IP network. It is even... ..improved to deliver higher resolution digital media over the cable infrastructure using NGN and CORE delivery mechanisms. The network becomes transparent and the applications and **content** drive the creativity of the service creation process. The PSTN like services will be delivered to devices connected via cable **access** just like they are delivered to other wire-line connected devices on the "New Core".

#### NGN Creation Strategy

The network transformation plan comprises of the...for a private VNIET customer. These records are only generated at switches or systems that have the capability of performing operator services or network **audio** response system (NARS) functions. The formats of the two (2) records are identical except for some field-specific information described below.

A SER is reserved...and final, check 3704 made on a call 3602 by a switch 1206-1210 determines if the call 3602 is an enhanced voice service/network **audio** response system (EVS/NARS) call. An EVS/NARS is an **audio** menu system in which a customer makes selections in response to an automated menu via her telephone key pad. Such a system includes a NARS switch on which the **audio** menu system resides. Therefore, during an EVS/NARS call 3602, the NARS switch 5 1206-1210 records the customer's menu

selections in an expanded...Telecommunication Standardization Sector ("ITU-T") has established numerous standards governing protocols and line encoding for

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ITU G.711 Recommendation for Pulse Code Modulation of 3kHz **Audio** Channels.

ITU G.722 Recommendation for 7kHz **Audio** Coding within a 64kbit/s channel.

ITU G.723 Recommendation for dual rate speech coder for multimedia communication transmitting at 5.3 and 6.3...Point Protocol

MPEG Motion Pictures Expert Group, a standards body under the International Standards Organization (ISO), Recommendations for compression of digital Video and **Audio** including the bit stream but not the compression algorithms.

SLIP Serial Line Internet Protocol

RSVP Resource Reservation Setup Protocol

UDP User Datagram Protocol

1.5...Central Office (CO) Switch to LEC CO, but not from end to end. The analog local loop transmits an analog signal, not 64 Kbps digitized **audio**. One of these analog local loops typically exists as the "last mile" of each of the telephone network circuits to attach the local telephone of...by vendors.

These routers must make decisions as to how to send the data packets it receives to its destination through the use of continually **updated** routing tables. By analyzing the destination network address of the packets, routers make these decisions. Importantly, a router does not

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Now, it is useful...The Fault Management Process 4500 begins with a transmitting step 4502. In step 4502, data is transmitted over the hybrid network, including video and mixed **audio**

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information. The data transmission generally makes full use of the hybrid networks mixed circuit-switched and packet-switched components. As discussed above, the hybrid...  
...a Database Component for later analysis by the

Reporting Component; and

4) allows real time viewing of faults in a network map and network event **views**.

The Fault Management component 4600 includes the **following** elements.

UNIX Servers 4602- Any UNIX Server with BMC Patrol clients loaded.

NT Servers 4604 - Any NT Server with BMC Patrol clients loaded.

SNMP Devices...billing cycles.

Integrated IP Telephony User Interface

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One embodiment of the present invention allows a user of a web application to communicate in an **audio** fashion in-band without having to pick up another telephone. Users can click a button and go to a call center through a hybrid network...a user to use telephonic communication with little or no disruption while interfacing with the Internet. Multimedia computer speakers are used to receive the telephony **audio** from the network and the microphone is used to transmit the telephony data to the network.

#### Data Mining

The present invention includes data mining capability... ..centers on the automated discovery of new facts and underlying relationships in the data. The term "data mining" comes from the idea that the raw **material** is the business data, and the data mining algorithm is the excavator, sifting through the vast quantities of raw data looking for the valuable nuggets...generation of an Internet architecture framework like the one shown in Figure 53 to support various features such as an electronic commerce component 5300, a **content** channels component 5302, an administrative component 5304, a customer relationship management component 5306, a **content** management and publishing services component 5308, an education related services component 5310, or a web customer service component 5312.

The present invention provides a new... ..web architecture framework (called "WAY" in this document) that secures, administers, and audits electronic information use. WAF also features fundamentally important capabilities for managing **content** that travels "across" the "information

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highway." These capabilities comprise a rights protection solution that serves all electronic community members. These members include **content** creators and distributors, financial service providers, end-users, and others. WAF is the first general purpose, configurable, transaction control/rights protection solution for users of... ..are referenced throughout this document, summaries of the relevant standards are listed below for reference.

ITU G.711 Recommendation for Pulse Code Modulation of 3kHz **Audio** Channels.

ITU G.722 Recommendation for 7kHz **Audio** Coding within a 64 kbit/s channel.

ITU G.723 Recommendation for dual rate speech coder for multimedia communication transmitting at 5.3 and 6...Central Office (CO) Switch to LEC CO, but not from end to end. The analog local loop transmits an analog signal, not 64 Kbps digitized **audio**. One of these analog local loops typically exists as the "last mile" of each of the telephone network circuits to attach the local telephone of...for the purposes of the present invention are called "control information." WAF control information may be specifically associated with one or more pieces of electronic **content** and/or it may be employed as a general component of the operating system capabilities of a WAF installation.

WAF transaction control elements reflect and enact **content** specific and/or more

generalized administrative (for example, general operating system) control information. WAF capabilities which can generally take the form of applications (application...with capability parameter data to reflect the elements of one or more express electronic agreements between WAF participants in regards to the use of electronic **content** such as commercially distributed products. These control capabilities manage the use of, and/or auditing of use of, electronic **content**, as well as reporting information based upon **content** use, and any payment for said use. WAF capabilities may "evolve" to reflect the requirements of one or more successive parties who receive or otherwise contribute to a given set of control information. Frequently, for a WAF application for a given **content** model (such as distribution of entertainment on CD-ROM, **content** delivery from an Internet repository, or electronic catalog shopping and advertising, or some combination of the above) participants would be able to securely select from... ..participant as part of such a contribution. In the most general example, a generally certified load module (certified for a given WAF arrangement and/or **content** class) may be used with many or any WAF application that operates in nodes of said arrangement. These parties, to the extent they are allowed... ..the specification of load modules and methods, as well as add, delete or otherwise modify related information.

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Normally the party who creates a WAF **content** container defines the general nature of the WAF capabilities that will and/or may apply to certain electronic information. A WAF **content** container is an object that contains both **content** (for example, commercially distributed electronic information products such as computer software programs, movies, electronic publications or reference **materials**, etc.) and certain control information related to the use of the object's **content**. A creating party may make a WAF container available to other parties. Control information delivered by, and/or otherwise available for use with, WAF **content** containers comprise (for commercial **content** distribution purposes) WAF control capabilities (and any associated parameter data) for electronic **content**. These capabilities may constitute one or more "proposed" electronic agreements (and/or agreement functions available for selection and/or use with parameter data) that manage the use and/or the consequences of use of such **content** and which can enact the terms and conditions of agreements involving multiple parties and their various rights and obligations.

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A WAF electronic agreement... ..process during which terms and conditions are "evaluated" by certain WAF participant control information that assesses whether certain other electronic terms and conditions attached to **content** and/or submitted by another party are acceptable (do not violate acceptable control information criteria). Such an evaluation process may be quite simple, for example... ..senior, control terms and conditions in a table of terms and conditions and the submitted control information of a subsequent participant in a pathway of **content** control information handling, or it may be a more elaborate process that evaluates the potential outcome of, and/or implements a negotiation process between, two... ..more WAF capabilities may be present at a WAF installation, and certain WAF agreements may have been entered into during the registration process for a **content** distribution application, to be used by such installation

for securely controlling WAF **content** usage, auditing, reporting and/or payment. Similarly, a specific WAF participant may enter into a WAF user agreement with a WAF **content** or 1 5 electronic appliance provider when the user and/or her appliance register with such provider as a WAF installation and/or user. In... ..certain WAF methods are employed, for example in a certain sequence, in order to be able to use all and/or certain classes, of electronic **content** and/or WAF applications.

WAF ensures that certain prerequisites necessary for a given transaction to occur are met. This includes the secure execution of any... ..modules execute as processes at an appropriate time to ensure that such credit will be used in order to pay for user use of the **content**. A certain **content** provider might, for example, require metering the number of copies made for distribution ...and shipping fees applicable to international transactions. These and other options will be discussed in more detail below.

Through use of WAFs control system, traditional **content** providers and users can create electronic relationships that reflect traditional, non-electronic relationships. They can shape and modify commercial relationships to accommodate the evolving needs of, and agreements among, themselves. WAF does not require electronic.**content** providers and users to modify their business  
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practices and personal preferences to conform to a metering and control application program that supports limited, largely fixed functionality.

Furthermore, WAF permits participants to develop business models not feasible with non-electronic commerce, for example, involving detailed reporting of **content** usage information, large numbers of distinct transactions at hitherto infeasibly low price points, "pass-along" control information that is enforced without involvement or advance knowledge of the participants, etc.

The present invention allows **content** providers and users to formulate their transaction environment to accommodate.

(1) desired **content** models, **content** control models, and **content** usage information pathways,

(2) a complete range of electronic media and distribution means,

(3) a broad range of pricing, payment, and auditing strategies,

(4) very... ..of users related to information regarding their usage of electronic information and/or appliances,

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(2) societal policy such as laws that protect rights of **content** users or require the collection of taxes derived from electronic transaction revenue, and

(3) the proprietary and/or other rights of parties related to ownership... ..of commercial relationships that form, over time, a network of interrelated agreements representing a value chain business model. This is achieved in part by enabling **content** control information to develop through the interaction of (negotiation between) securely created and independently

submitted sets of **content** and/or appliance control information. Different sets of **content** and/or appliance control information can be submitted by different parties in an electronic business value chain enabled by the present invention.

These parties create... ..allows such constituent electronic agreements, and therefore overall WAF extended agreements, to evolve and reshape over time as additional WAF participants become involved in WAF **content** and/or appliance control information handling. WAF electronic agreements may also be extended as new control information is submitted ...allows a competitive electronic commerce marketplace to develop since the use of WAF enables different, widely varying business models using the same or shared

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**content.**

A significant facet of the present invention's ability to broadly support electronic commerce is its ability to securely manage independently delivered WAF component objects... ..containing one or more methods, data, or load module WAF components). This independently delivered control information can be integrated with senior and other pre-existing **content** control information to securely form derived control information using the negotiation mechanisms of the present invention. All requirements specified by this derived control information must be satisfied **before** WAF controlled **content** can be **accessed** or otherwise used. This means that, for example, all load modules and any mediating data which are listed by the derived control information as required... ..management. This rationalization stems from the reusability of control structures and user interfaces for a wide variety of transaction management related activities. As a result, **content** usage control, data security, information auditing, and electronic financial activities, can be supported with tools that are reusable, convenient, consistent, and familiar. In addition, a... ..As a result, users of WAF can avoid the confusion and expense and other inefficiencies of different, limited purpose transaction control applications for each different **content** and/or business model. For example, WAF allows **content** creators to use the same WAF foundation control arrangement for both **content** authoring and for licensing **content** from other **content** creators for inclusion into their products or for other use. Clearinghouses, distributors, **content** creators, and other WAF users can all interact, both with the applications running on their WAF installations, and with each other, in an entirely consistent... ..agreements they entered into through the use of WAF can be enforced reliably. These agreements may have both "dynamic" transaction management related aspects, such as **content** usage control information enforced through budgeting, metering, and/or reporting of electronic information and/or appliance use, and/or they may include "static" electronic assertions... ..using the system to assert his or her agreement to pay for services, not to pass to unauthorized parties electronic information derived from usage of **content** or systems, and/or agreeing to observe copyright laws. Not only can electronically reported transaction related information be trusted under the present invention, but payment... ..from an electronic account (for example, an account securely maintained by a user's WAF installation secure

subsystem) based upon usage of WAF controlled electronic **content** and/or appliances (such as governments, financial credit providers, and users).

WAF allows the needs of electronic commerce participants to be served and it can... ..to support very large amounts of commerce.

WAF's security and metering secure subsystem core will be present at all physical locations where WAF related **content** is (a) assigned usage related control information (rules and mediating data), and/or (b) used. This core can perform security and auditing functions (including metering... ..as well as system software designed to enable WAF integration into host environments and applications. WAF's usage control information, for example, provide for property **content** and/or appliance related: usage authorization, usage auditing (which may include audit reduction), usage billing, usage payment, privacy filtering, reporting, and security related communication and...Electronic commerce technologies that do not, as the present invention does.

support a broad range of possible, complementary revenue activities, offer a flexible array of **content** usage features most desired by customers, and exploit opportunities for operating efficiencies, will result in products that are often intrinsically more costly and less appealing... ..efficiently support merging of control and auditing capabilities in nearly any electronic appliance environment while maintaining overall system security;

(b) modular data structures;

(c) generic **content** model;

(d) general modularity and independence of foundation architectural components;

(e) modular security structures;

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(f) variable length and multiple branching chains of control; and... ..and models, and where such model control schemes can "evolve" as control information passes through the WAF installations of participants of a pathway of WAF **content** control information handling.

## CATALOG CAPABILITIES

Displays linkable pictures and text

Customizes rendering based on user preferences

Provides multiple ways to traverse the catalog (ease of navigation)

1 5 Shows Quick-buy link throughout catalog

Incorporates multiple languages and localized **content**

Integrates to centralized publishing for fresh **content**

Displays guest **view** of catalog (default set)

Creates personal catalog

Referring to operation 5400 of Figure 54, one embodiment of the electronic commerce component of the present invention... ..used on the page displaying the data to obtain additional detail.

Optionally, the data may be integrated to centralized publishing for integrity. In such case, **updated** data would be downloaded to ensure the correctness and currentness of the information..

A proactive notification could also be made near the time of download...screen and if he or she likes it, he or she takes it into the shopping basket. During the shopping, he or she examines the **content** of the shopping basket as required to check the item scheduled to purchase and the pay amount of the items. Accordingly, it is not necessary...a selfservice terminal system identified as model NCR 5682, incorporates the data gathering and transaction processing capabilities of conventional automated teller machines with video, graphics, **audio** and printer operations. Interactivity with the customer is governed by a software system through the use, for example, of a keyboard or an infrared touch... ..such as flight schedules, ticket prices, weather information and other information useful in the planning of a business trip or

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vacation which is periodically **updated** via a communication link with the remote control center. The self-service terminal normally operates off-line.

Payment for items purchased over the Internet is...gateway such that a subset of the information is readable to the payment gateway but not to the merchant. Although SSL allows for robustly secure **two**-party data transmission, ...supported for proper transaction processing.

With the increasing popularity of computer communications, many companies are becoming interested in advertising and supporting their products using an **online** computer service that can be accessed by customers. However, creating a large online computer service is an extensive task. To develop a sophisticated **online** service, such as America **Online**.RTM., CompuServe.RTM., Genie.RTM., or Prodigy.RTM., a company must have a large mainframe computer and customized software. Developing the customized software requires a... ..and thus cannot easily develop and maintain an online presence.

One way a company can contact millions of potential customers is to use the global **Internet**. The global Internet is a network of computer networks that links together millions of computer systems using the well defined TCP/IP protocol.

A new... ..of the global Internet.

For a company that wishes to develop an online presence, creating a World-Wide Web Server would provide a feature rich **online** service available to customers and clients. A World-Wide Web Server can store images, text, animation, and sounds that provide ...the user for performing some type of action such as winning a contest or completing a marketing survey. Third, an online service may charge a **content** provider for placing certain information on the online service. For example, a **content** provider can be charged for placing an advertisement on the online service. Finally, a **content** provider

can be paid by the online service for providing information that users may wish to access, can be provided on a for-fee basis. Conversely, an online service provider may wish to pay third party **content** providers for placing useful **material** on the online service.

Thus, when creating a publicly accessible online system, it is desirable to include the ability to define fee structures for accessing...to a "captive audience" that many or most end users remain tuned to the same signal even when the main program to which they are **listening** or viewing is interrupted by advertisements.

Another example of advertising mixed with information dissemination is the use of scrolled text at the bottom of a... ..like.

Yet another example of mixing advertisements with information dissemination are newspapers and magazines.

Most, and perhaps all such examples of mixing advertisements with information **content** are based on systems in which the end user has actively elected to view or **listen** to a program or to otherwise receive information. Furthermore, in virtually all such systems or media, the juxtaposition or placement of advertisements and information **content** is explicitly programmed or determined by human beings working as "editors" or in a similar **content** and/or presentation editing capacity.

Distributing information via the Internet or other publicly accessible computer communication networks has been largely unsupported by advertising revenues due to the lack of good mechanisms for mixing advertising and information **content** in such a way as to be acceptable to both end users and advertisers.

There are, of **course**, some exceptions where advertising/**content** mixtures from other contexts, such as newspapers and television, have been simply replicated on the Internet. For instance, some newspapers have been "published" at least in part on the Internet, and include advertisements along with information **content**.

In fact, some newspapers sell advertising space on an associated World Wide Web (WWW) site, which often includes extensive listings of certain types of advertisements...food and grocery, personal care, hardware and appliances, means that a retailer may have thousands of models or varieties of goods in inventory, each, of **course**, with a concomitant price. The result of this multitude of consumer products is that the control and consistency of pricing has assumed increasing importance, especially... ..in the stock brokerage area, will provide market pricing of stocks. While these systems can accommodate a continually changing price situation, the actual pricing, of **course**, is independent of the system, i.e., pricing is controlled by the stock market.

The current wide-ranging use of computer systems provides a relatively large potential

market to providers of electronic **content** or information. These providers may include, for example, advertisers and other information

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publishers such as newspaper and magazine publishers. A cost, however is involved... ...Thus, it would be beneficial to provide a system which allows individual users to control the amount of electronic advertising they receive with their electronic **content**.

In addition, providers of electronic advertisements would be able to subsidize the cost of electronic **content** for end users. The amount of this subsidy would be dependent on the amount of electronic advertising which is consumed by the end users and... ...these consumers. Thus, it would be,beneficial to provide a system which allows the providers of electronic advertisements to provide advertising-based subsidization of electronic **content** consumption, based upon the perceived quality of consumers who have specifically chosen to consume these advertisements, cognizant of the fact that consuming these advertisements

will subsidize their electronic **content** consumption fees,

ORDERPLACEMENT

Collects user information for order processing (shipping, billing)

Recaps order for confirmation (shipping, price, availability)

Allows for order maintenance (qty, product...and other distributors, of electronic information,

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(2) financial service (e.g. credit) providers,

(3) users of (other than financial service providers) information arising from **content** usage such as **content** specific demographic information and user specific descriptive information. Such users may include market analysts, marketing list compilers for direct and directed marketing,

and government agencies,

(4) end users of **content**,

(5) infrastructure service and device providers such as telecommunication companies and hardware manufacturers (semiconductor and electronic appliance and/or other computer system manufacturers) who receive... ...to support the various underlying agreements between parties that comprise this extended agreement. These agreements can define important electronic commerce considerations including.

(1) security,

(2) **content** use control, including electronic distribution,

(3) privacy (regarding, for example, information concerning parties described by medical, credit,

tax, personal, and/or of other forms of confidential information),

(4) management of financial processes, and

(5) pathways of handling for electronic **content**, **content** and/or appliance control information, electronic **content** and/or appliance usage information and payment and/or credit.

WAF agreements may define the electronic commerce relationship of two or more parties

of a... ..support evolving ("living") electronic agreement arrangements that can be modified by current and/or new participants through very simple to sophisticated "negotiations" between newly proposed **content** control information interacting with control information already in place and/or by negotiation between concurrently proposed **content** control information submitted by a plurality of parties. A given model may be asynchronously and progressively modified over time in accordance with existing senior rules and such modification may be applied to all, to classes of, and/or to specific **content**, and/or to classes and/or specific users and/or user nodes. A given piece of **content** may be subject to different control information at different times or places of handling, depending on the evolution of its **content** control information (and/or on differing, applicable WAF installation **content** control information). The evolution of control information can occur during the passing along of one or more WAF control information containing objects, that... ..modified at one or more points along a chain of control information handling, so long as such modification is allowed. As a result, WAF managed **content** may have different control information applied at both different "locations" in a chain of **content** handling and at similar locations in differing chains of the

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Electronic agreements supported by the preferred embodiment of the present invention can vary from...and/or currency usage and administration capabilities, (d) privacy protection for usage information a user does not wish to release, and (e) "living" electronic information **content** dissemination models that flexibly accommodate.

(1) a breadth of participants,  
 (2) one or more pathways (chains) for: the handling of **content**, **content** and/or appliance control information, reporting of **content** and/or appliance usage related information, and/or payment, (3) supporting an evolution of terms and conditions incorporated into **content** control

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(4) support the combination of multiple pieces of **content** to form new **content** aggregations, and (5) multiple concurrent models.

## ORDER STATUS AND HISTORY

Provides real-time order status (backorders)

Provides real-time shipping status

Provides real-time invoice...of following transactions. To properly track activity, a trade generates a (virtual and/or real) single trade ticket--with associated, and screen-displayed, reference number.

## CONTENT CHANNEL-RELATED WEB APPLICATION SERVICES

As illustrated in Figure 53 and denoted by reference numeral 5302, another embodiment of the present invention is provided for affording a combination of **content** channel-related web application services. More detail is given in Figure 66. Various features are included such as downloading data in operation 6600 and transmitting... ..push-technology data, based on user specifications in operation 6602. In operation 6604, a plurality of newsgroups are also provided to which users may subscribe. **Content**

subscriptions are also available. Answers are provided to frequently asked questions (FAQ's) relating to the **content**-related web application services. See operation 6606. Further, in operation 6608, real time communications are enabled between a plurality of users. In use, the transmission... ..If an error occurs during downloading, the download 15 is restarted. These features greatly facilitate transactional dependent downloads.

#### PUSH TECHNOLOGY CAPABILITIES

Sends messages or **content** to customers proactively

Allows for delivery and receipt of custom applications developed in all major languages- (i.e.

.Visual Basic, C++, Java)

Receives, installs, and launches applications automatically without user intervention

Utilizes plug-ins allowing developers to personalize applications and **content**

Performs informal hardware and software audits

Delivers self-updating applications

Referring to operation 6602 of Figure 66, push-technology data is transmitted based on user specifications. Preselected messages and **content** may be sent to customers proactively.

Furthermore, applications could be received, installed, and launched automatically without user intervention. For example, a software update could be... ..of programming languages, such as VISUAL BASIC, C++, and JAVA, is allowed. Plug-ins may also be utilized to allow developers to personalize applications and **content**.

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#### DISCUSSION FORUMS AND NEWSGROUPS

Securely handles all media types (e.g. graphics, **audio**, etc.)

Links to web pages for easy access to published documents

Facilitates discussions across multiple discussion groups

Finds information with search and notification tools

Allows... ..Operation 6604 of Figure 66 provides for a plurality of newsgroups to which users can subscribe.

Sending and receipt of all media types, including graphics, **audio**, streaming video, and the like is permitted. A user may also participate in discussions via email. Selected users or an administrator may also...be provided to search for information. Notification tools may inform a user of various events, such as when a particular discussion is going to occur.

#### CONTENT SUBSCRIPTIONS

Allows users to subscribe and unsubscribe for different services

Allows subscribers to set up **content** preferences (e.g. topics)

Allows users to subscribe third parties for services

The **content** channels component of the present invention allows users to subscribe and unsubscribe to different services such as, for example, newsletters, travel clubs, and the

like.

Users would also be allowed to limit the **content** of the **materials** received to their particular preference. For example, a user would select several topics from a list of topics and would later receive information on the... ..services.

## FREQUENTLY ASKED QUESTIONS

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Displays static answers to popular questions

Dynamically generates questions and answers from a knowledge base

Tracks knowledge experts based on **content** authors and discussion forum participation

Referring to operation 6606 of Figure 66, the **content** channels component of the present invention would also include a component for displaying static answers to popular questions.

Yi

The questions and answers could... ..Notifies users if another user is on-line

Provides free forum discussion area

Allows for moderated chat sessions

Chat capabilities could be included in the **content** channels component of the present invention.

Note operation 6608 of Figure 66. Such capabilities would permit collaborative web touring and URL pasting, for such things... ..tracks outbound messages

Automates regular communication triggered by events

Tracks email responses for campaign management statistics

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In operation 6610, shown in Figure 66, the **content** channels component of the present invention also permits generation of messages which may be sent to selected users at predetermined times or automatically upon occurrence... ..Other messages would be queued in mailboxes for response. All or selected messages may be stored to build a customer interaction history.

## DYNAMIC RENDERING

Displays **content** and applications based on profile

Pulls **content** from multiple data sources: static, database, third party site

Matches **content** to users via configurable business rules

Allows custom template based publishing

The **content** channels component of the present invention also provides for generic and custom template based publishing by displaying selected **content** and applications based on the profile of a user. Note operation 6614 of Figure 66. **Content** is obtained from multiple data sources, including static, database, and third party sites. Optionally, the **content** may be matched to particular users via configurable business rules.

## ADMINISTRATIVE AND FINANCIAL WEB APPLICATION SERVICES

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Another embodiment of the present invention is provided... ..may only be routed to certain destinations selected by the users submitting the resumes.

#### SHAREHOLDER SERVICES

Provides personalized stock tickers

Displays corporate financial information

The **content** channels component of the present invention provides a customizable display including personalized stock tickers, links to corporate financial information, and an online brokerage service. Other... ..legal policies and notifications (privacy policy)

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Provides media kits

Allows users to register for branding usage

Legal notices and policies are displayed by the **content** channels component of the present invention. ...written up in some accounting magazine. It might also compare what similar IT professionals from accounting firms purchased.

#### DYNAMICALLY FACILITATE COMMUNITIES OF INTEREST

Provides static **content** and applications to people with similar preferences or business needs Provides dynamic **content** and applications to people with similar preferences or business needs

Communities can be created by configurable business rules

The customer relationship management component of the present invention, in operation 6702, provides static **content** and applications to people with similar preferences and business needs. Dynamic **content** is provided, as are applications, to people with similar preferences and business needs.

#### MATCH WEB CONTENT TO SPECIFIC USER PROFILES

Permits cross- and up-sell...

#### Claims:

...4ces (bar-Aidth) Communications - SS CGI f NSAPI F ISAPi

EmailL @ @5,31ancing SeWeb Application ServicCommerce C o ntent Cha nnels

Customer **Content** Mgmt & EducatorRelationship Mgmt Publishing ServicesQuote

(Price & User Profile Mg FContent Development]F@atalog Capabib@fies F Chat

Capabifiles7 m Frurriculum I(products services) Availability) WI-time)I (Active

Profndinq@) Tools I Marketing,tej **Content** agementgm Dynamically FadliPush Technj-

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r:zvStorage :jon 3ra calyDirectory Services Management Operations WIV...Figure

65640865/130DOWNLOADING DATA TRANSMITTING DATA BASED ON USER SPECIFICATIONS PROVIDING A PLURALITY OF NEWS GROUPS TO WHICH USERS SUBSCRIBE OUTPUTTING ANSWERS TO FREQUENTLY ASKED QUESTIONS RELATING TO THE 6606 **CONTENT**-RELATED WEB APPLICATION SERVICES  
 66106612... ..A USER USES THE SYSTEM LOGGING THE USER'S CURRENT ACTIVITIES AND ENTERING THEM 6903 INTO THE DATABASE Figure 69681069/130CDEVELOPING **CONTENT** OF A DATA INTERFACE FOR ACCESSING DATA ON A NETWORK 1 UU2MANAGING THE **CONTENT** OF THE DATA INTERFACE APPROVING THE PUBLICATION OF THE **CONTENT** BEFORE TRANSMISSION OF THE 4**CONTENT**. ..... TESTING THE **CONTENT** OF THE DATA INTERFACE 70065308 Figure 7070/130GENERATING A CURRICULUM OF **COURSE** OFFERINGS ALLOWING THE SELECTION OF THE **COURSE** OFFERINGS EDUCATING USERS OVER A NETWORK 1 7106 DISPLAYING A STATUS OF THE EDUCATION OF THE USERS INCLUDING AT LEAST ONE OF THE **COURSES** COMPLETED AND SCORES FOR THE **COURSES** COMPLETED 5310 Figure 7171/130ALLOWING A USER TO REVIEW EDUCATIONAL PROGRAM OFFERINGS IVPROMPTING 'THE USER TO ENTER USER INDICIA 7201 7202 RECEIVING THE USER INDICIA 7203 GENERATING A USER... ..AT LEAST ONE OF APPLICATION AND SYSTEM DATA BASED ON THE USER VERIFICATION DATA 7604 ENABLING VIRTUAL PRIVATE NETWORKING Figure 76531476/130CACHING **CONTENT** OF A NETWORK 7702 PROVIDING APPLICATION PROXY SERVICES ON THE NETWORK MANAGING RESOURCES OF THE NETWORK IMANAGING NETWORK OBJECTS ON THE NETWORK 7706 I... ..ELECTRONIC MAIL CAPABILITIES IN THE NETWORK FRAMEWORK ENABLING NETWORK FRAMEWORK BROWSING IN THE NETWORK FRAMEWORK r-,,,@ OUTPUTTING ANSWERS TO FREQUENTLY ASKED QUESTIONS RELATING TO THE 7906 **CONTENT**-RELATED WEB APPLICATION SERVICES PROVIDING NEWS READER CAPABILITIES IN THE NETWORK FRAMEWORK AFFORD. NG CHAT ROOM CAPABILITIES IN THE NETWORK FRAMEWORK 79107912 ENABLING PLAYBACK... ..OVER THE NETWORK FRAMEWORK 5812 Figure 8181/130 PROVIDING LOCATOR CAPABILITIES OVER A NETWORK FRAMEWORK 8200 TRANSMITTING AT LEAST ONE OF STREAMING VIDEO AND **AUDIO** DATA 8202 OVER THE NETWORK FRAMEWORK 8204 LOGGING EVENTS OVER THE NETWORK FRAMEWORK PASSIVELY MANAGING USER PROFILE INFORMATION OVER ...ALLOWING THE USER TO SELECTIVELY POSITION THE DELIVERED CONTENTS ON THE DISPLAY Figure 9692/13097109712 Identification @- @@730 Customer Selection 9714 Information Capture **Content** Catalog 97329716 Matching Customer 9718 Acquisition & Delivery 9720 **Content** Merge 9734 Administration Customer Personalization Extension 97369700 Customer Retention in te'rqICtIve 9702 Figure 97 Marketing 970097149710 9712 DATA WAREHOUSE **CONTENT** CATALOGIFICATION FZ INFORMATION USERZ

CAPTURE0 PROFILES LUHTML PAGES INFORMATIONZZLOGIC  
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zz zLLI 0C)z0PRODUCTS GRAPH10104Figure 10110200SITE NAVIGATION E:l I..j  
Z@.j10202DCAISTATIC  
CONTENTDYNAMICCONTENTAREAS10204DCA210206DCA3Figure 102HTML  
TEMPLATE95/130MONITORING OPERATION OF ENTITIES SELECTED FROM  
THE 10402GROUP CONSISTING OF SERVER PROCESSES, DISK... ..TIME TO  
ASERVER, AND A NUMBER OF CONNECTIONS IN AN &COMMERCESYSTEMA  
FUPDATING ITEMS SELECTED FROM THE GROUP CONSISTING OF  
10404MERCHANDISING CONTENT, CURRENCY EXCHANGE RATES,  
TAXRATES, AND PRICING IN THE E-COMMERCE SYSTEM  
ATPREDETERMINED INTERVALS10406SYNCHRONIZING EXTERNAL DATA  
STORED SEPARATELY FROMTHE ECOMMERCE SYSTEM...

7/K/67 (Item 29 from file: 349)  
DIALOG(R)File 349: PCT FULLTEXT  
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Country	Number	Kind	Date
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### Detailed Description:

...matched service provider and the manufacturer may also be managed. In such an embodiment, the management of collaboration may include facilitating the transmitting of information **between** the matched service provider and the manufacturer utilizing the network. In an aspect of this embodiment, a collaborative planning tool may be provided for managing...DS2 channels into a DS3. Presently, most networks use a single multiplexer termed an M13, which combines twenty-eight DS1 channels into a DS3. Of **course**, one of the key attributes of these previous multiplexer designs is that they permit DS I signals to be timed independently, i.e. asynchronous multiplexing... ..million bits per second, plus or minus 75 bps. To compensate for this range, additional bits must therefore be "stuffed" into each DS I signal **before** they are multiplexed to a higher rate.

Again, as those skilled in the art will recognize, while bit stuffing supports independently clocked input signals, it...appropriate destination.

Packet switching networks are also used which combine burst type data with the more continuous types of information such as voice, high quality **audio**, and motion video. Commercialization of voice, video and **audio** transmission makes it desirable to be able to connect packets to multiple destinations, called packet broadcasting. For example, a

broadcast video service such as pay... ..packets, each of which is directed to multiple video receivers. Similarly, conferencing capabilities for voice communication also require single source to multiple destination transmission.

One **prior** packet broadcast arrangement comprises a network consisting of a packet duplication arrangement followed by a packet routing arrangement. As a broadcast packet enters this network...use services that cross many access technologies, e.g. wireless to cable phone services, web browsing from wireless devices etc.

The present invention maps a **course** for the network evolution from circuit to packet switched technology using a migratory approach in which the network becomes a hybrid circuit and packet topology... ..and features are the CLASS family of services (Call waiting, Call forwarding, Conference calling, Call rejection), enhanced call routing, Number Portability, Calling Card Services, and **Audio** delivered Information Services (e.g. travel, stocks and weather).

These IN capabilities are enabled by devices such as SCP, STP, SSP and EIP in the...multi-point conference, enhanced security & authentication, various classes of media transport services, numerous automations in electronic internet commerce activities e.g. banking, shopping, customer care, **education**, etc. As the NGN matures third party value added service providers will develop IP based services that will combine applications such as electronic commerce (procurement...based on Priority, Cost, Termination Location

Media and Application requirements ( Voice Telephone to Video Telephone, Multi-point, text to speech, Fax to E-mail etc. )

**Content** Separation (Example: Tells the intelligent peripheral and protocol converter to separate the **Audio** stream from the data and video stream on an H.32x call; It may also instruct the protocol converter to process the stream so as to enable this **audio** stream to be fed to a destination which supports traditional analog voice hence the G.728/9 **content** from the H.32x session would be converted first to AD/PCM and then sent to a Class 5 circuit based switch and terminated on...speed internet access. Thus in the "NGN" scenario for cable networks, cable will provide a new access mechanism for IP services, while simultaneously transport video **content** using the current video broadcast technology. Thus the IP enabled devices attached to the "NGN" cable infrastructure can take advantage of all the new components...based services. As the "New Core" matures and enhances in capabilities (probably 10 years away), such that it can provide high speed real-time video **content** (to provide same quality as cable), it can be envisaged that the cable will become an entirely EP access mechanism Oust like all wire-line **access** becomes an IP **access** mechanism). Then the broadcast video **content** will be delivered to IP enabled cable attached devices 'ust like any other rich media will be delivered over the IP network. It is even... ..to deliver higher resolution digital media over the cable infrastructure using NGN and CORE delivery

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mechanisms. The network becomes transparent and the applications and **content** drive the creativity of the service creation process. The PSTN like services will be delivered to

devices connected via cable access 'ust like they are...POSR for a private VNET customer. These records are only generated at switches or systems that have the capability of performing operator services or network **audio** response system (NARS) functions. The forinats of the two (2) records are identical except for some fieldspecific information described below.

A SER is reserved for...and final, check 3704 made on a call 3602 by a switch 1206-1210 determines if the call 3602 is an enhanced voice service/network **audio** response system (EVS/NARS) call. An EVS/NARS is an **audio** menu system in which a customer makes selections in response to an automated menu via her telephone key pad. Such a system includes a NARS switch on which the **audio** menu system resides. Therefore, during an EVSNARS call 3602, the NARS switch 1206-1210 records the customer's menu selections in an expanded record (EOSR...are referenced throughout this document, summaries of the relevant standards are listed below for reference.

ITU G.711 Recommendation for Pulse Code Modulation of 3kHz **Audio** Channels.

ITU G.722 Recommendation for 7kHz **Audio** Coding within a 64kbit/s channel.

ITU G.723 Recommendation for dual rate speech coder for multimedia communication transmitting at 5.3 and 6.3... ...Point-to-Point Protocol

MPEG Motion Pictures Expert Group, a standards body under the International Standards Organization(ISO), Recommendations for compression of digital Video and **Audio** including the bit stream but not the compression algorithms.

SLIP Serial Line Internet Protocol

RSVP Resource Reservation Setup Protocol

UDP User Datagram Protocol

The popularity...Central Office (CO) Switch to LEC CO, but not from end to end. The analog local loop transmits an analog signal, not 64 Kbps digitized **audio**. One of these analog local loops typically exists as the "last mile" of each of the telephone network circuits to attach the local telephone of...The Fault Management Process 4500 begins with a transmitting step 4502. In step 4502, data is transmitted over the hybrid network, including video and mixed **audio** information. The data transmission generally makes full use of the hybrid networks mixed circuit-switched an packet-switched components. As discussed above, the hybrid network... ...a Database Component for later analysis by the Reporting Component; and

4) allows real time viewing of faults in a network map and network event **views**.

The Fault Management component 4600 includes the **following** elements.

UNIX Servers 4602- Any UNIX Server with BMC Patrol clients loaded.

NT Servers 4604 - Any NT Server with BMC Patrol clients loaded.

SNMP Devices...Object Server and opens tickets within Remedy as customized by the

user. The Remedy trouble ticket ID is returned to the Omnibus and can be **viewed** as further reference.

Renied 4636 - Remedy Action Request System, a trouble ticketing system.

Oracle QatenLay 4638 - The Omnibus Netcool Oracle Gateway automatically reads alerts in...900 billing cycles.

#### Integrated IP Telephony User Interface

One embodiment of the present invention allows a user of a web application to communicate in an **audio** fashion in-band without having to pick up another telephone. Users can click a button and go to a call center through a hybrid network... ..a user to use telephonic communication with little or no disruption while interfacing with the Internet. Multimedia computer speakers are used to receive the telephony **audio** from the network and the microphone is used to transmit the telephony data to the network,

#### Data Miping

The present invention includes data mining capability...centers on the automated discovery of new facts and underlying relationships in the data. The term "data mining" comes from the idea that the raw **material** is the business data, and the data mining algorithm is the excavator, shifting through the vast quantities of raw data looking for the valuable nuggets...generation of an Internet architecture framework like the one shown in Figure 53 to support various features such as an electronic commerce component 5300, a **content** channels component 5302, an administrative component 5304, a customer relationship management component 5306, a **content** management and publishing services component 5308, an education related services component 5310, or a web customer service component 5312.

The present invention provides a new... ..of web architecture framework (called "WAP in this document) that secures, administers, and audits electronic information use. WAF also features fundamentally important capabilities for managing **content** that travels "across" the "infori-nation highway." These capabilities comprise a rights protection solution that serves all electronic community members. These members include **content** creators and distributors, financial service providers, end-users, and others. WAF is the first general purpose, configurable, transaction control/rights protection solution for users of... ..are referenced throughout this document, summaries of the relevant standards are listed below for reference.

ITU G.711 Recommendation for Pulse Code Modulation of 3kHz **Audio** Channels.

ITU G.722 Recommendation for 7kHz **Audio** Coding within a 64 kbit/s channel.

ITU G.723 Recommendation for dual rate speech coder for multimedia communication transmitting at 5.3 and 6...Point Protocol

130

MPEG Motion Pictures Expert Group, a standards body under the International Standards

Organization(ISO), Recommendations for compression of digital Video and **Audio** including the bit stream but not the compression algorithms.

SLIUP Serial Line Internet Protocol

RSVP Resource Reservation Setup Protocol

UDP User Datagram Protocol

The popularity... ..Central Office (CO) Switch to LEC CO, but not from end to end. The analog local loop transmits an analog signal, not 64 Kbps digitized **audio**. One of these analog local loops typically exists as the "last mile" of each of the telephone network circuits to attach the local telephone of...for the purposes of the present invention are called "control information." WAF control information may be specifically associated with one or more pieces.

of electronic **content** and/or it may be employed as a general component of the operating system capabilities of a WAF installation.

WAF transaction control elements reflect and enact **content** specific and/or more generalized administrative (for example, general operating system) control information. WAF capabilities which can generally take the form of applications (application models... ..with capability parameter data to reflect the elements of one or more express electronic agreements between WAF participants in regards to the use of electronic **content** such as commercially distributed products. These control capabilities manage the use of, and/or auditing of use of, electronic **content**, as well as reporting information based upon **content** use, and any payment for said use. WAF capabilities may evolve" to reflect the requirements of one or more successive parties who receive or otherwise contribute to a given set of control information. Frequently, for a WAF application for a given **content** model (such as distribution of entertainment on CD-ROM, **content** delivery from an Internet repository, or electronic catalog shopping and advertising, or some combination of the above) participants would be able to securely select from... ..participant as part of such a contribution. In the most general example, a generally certified load module (certified for a given WAF arrangement and/or **content** class) may be used with many or any WAF application that operates in nodes of said arrangement. These parties, to the extent they are allowed... ..the specification of load modules and methods, as well as add, delete or otherwise modify related information.

Normally the party who creates a WAF **content** container defines the general nature of the WAF capabilities that will and/or may apply to certain electronic information. A WAF **content** container is an object that contains both **content** (for example, commercially distributed electronic information products such as computer software programs, movies, electronic publications or reference **materials**, etc.) and certain control information related to the use of the object's **content**. A creating party may make a WAF container available to other parties. Control information delivered by, and/or otherwise available for use with, WAF **content** containers comprise (for commercial **content** distribution purposes) WAF control capabilities (and any associated parameter data) for electronic **content**. These capabilities may constitute one or more "proposed" electronic agreements (and/or agreement functions available for selection and/or use with

parameter data) that manage the use and/or the consequences of use of such **content** and which can enact the terms and conditions of agreements involving multiple parties and their various rights and obligations.

A WAF electronic agreement may be... ..and conditions are "evaluated" by certain WAF participant control information that assesses whether

I 1 d/ e

certain other electronic terms and conditions attached to **content** and/or submitted by another party are acceptable (do not violate acceptable control information criteria). Such an evaluation process may be quite simple, for... ..control terms and conditions in a table of terms and conditions and the submitted control information of a subsequent participant in a pathway of **content** control information handling, or it may be a more elaborate process that evaluates the potential outcome of, and/or implements a negotiation process between... ..another party (other than the first applier of rules), perhaps through a negotiation process, accepts, and/or adds to and/or otherwise modifies, "in place" **content** control information, a WAF agreement between two or more parties related to the use of such electronic **content** may be created (so long as any modifications are consistent with senior control information). Acceptance of terms and conditions related to certain electronic **content** may be direct and express, or it may be implicit as a result of use of **content** (depending, for example, on legal requirements, previous exposure to such terms and conditions, and requirements of in place control information).

WAF capabilities may be employed...more WAF capabilities may be present at a WAF installation, and certain WAF agreements may have been entered into during the registration process for a **content** distribution application, to be used by such installation for securely controlling WAF **content** usage, auditing, reporting and/or payment. Similarly, a specific WAF participant may enter into a WAF user agreement with a WAF **content** or electronic appliance provider when the user and/or her appliance register with such provider as a WAF installation and/or user. In such events... ..certain WAF methods are employed, for example in a certain sequence, in order to be able to use all and/or certain classes, of electronic **content** and/or WAF applications.

WAF ensures that certain prerequisites necessary for a given transaction to occur are met. This includes the secure execution of any... ..modules execute as processes at an appropriate time to ensure that such credit will be used in order to pay for user use of the **content**. A certain

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**content** provider might, for example, require metering the number of copies made for distribution to employees of a given software program (a portion of the program... ..shipping fees applicable to international transactions. These and other options will be discussed in more detail below.

Through use of WAF's control system, traditional **content** providers and users can create electronic relationships that reflect traditional, non-electronic relationships. They can shape and modify commercial relationships to accommodate the evolving needs of, and agreements among, themselves. WAF

does not require electronic **content** providers and users to modify their business practices and personal preferences to conform to a metering and control application program that supports limited, largely fixed functionality.

Furthermore, WAF permits participants to develop business models not feasible with non-electronic commerce, for example, involving detailed reporting of **content** usage information, large numbers of distinct transactions at hitherto infeasibly low price points, "pass-along" control information that is enforced without involvement or advance knowledge of the participants, etc.

The present invention allows **content** providers and users to formulate their transaction environment to accommodate.

(1) desired **content** models, **content** control models, and **content** usage information pathways,  
(2) a complete range of electronic media and distribution means,  
(3) a broad range of pricing, payment, and auditing strategies,  
(4) very related to information regarding their usage of electronic information and/or appliances,  
(2) societal policy such as laws that protect rights of **content** users or require the collection of taxes derived from electronic transaction revenue, and  
(3) the proprietary and/or other rights of parties related to ownership... ..of commercial relationships that form, over time, a network of interrelated agreements representing a value chain business model. This is achieved in part by enabling **content** control information to develop through the interaction of (negotiation between) securely created and independently submitted sets of **content** and/or appliance control information. Different sets of **content** and/or appliance control information can be submitted by different parties in an electronic business value chain enabled by the present invention.

These parties create... ..allows such constituent electronic agreements, and therefore overall WAF extended agreements, to evolve and reshape over time as additional WAF participants become involved in WAF **content** and/or appliance control information handling. WAF electronic agreements may also be extended as new control information is submitted by existing participants. With WAF, electronic... ..invention allows a competitive electronic commerce marketplace to develop since the use of WAF enables different, widely varying business models using the same or shared **content**,

A significant facet of the present invention's ability to broadly support electronic commerce is its ability to securely manage independently delivered WAF component objects... ..containing one or more methods, data, or load module WAF components). This independently delivered control information can be integrated with senior and other pre-existing **content** control information to securely form derived control information using the negotiation mechanisms of the present invention. All requirements specified by this derived control information must be satisfied **before** WAF controlled **content** can be **accessed** or

otherwise used. This means that, for example, all load modules and any mediating data which are listed by the derived control information as required...  
 ...management. This rationalization stems from the reusability of control structures and user interfaces for a wide variety of transaction management related activities. As a result, **content** usage control, data security, information auditing, and electronic financial activities, can be supported with tools that are reusable, convenient, consistent, and familiar. In addition, a... ...As a result, users of WAF can avoid the confusion and expense and other inefficiencies of different, limited purpose transaction control applications for each different **content** and/or business model. For example, WAF allows **content** creators to use the same WAF foundation control arrangement for both **content** authoring and for licensing **content** from other **content** creators for inclusion into their products or for other use. Clearinghouses, distributors, **content** creators, and other WAF users can all interact, both with the applications running on their WAF installations, and with each other, in an entirely consistent... ...agreements they entered into through the use of WAF can be enforced reliably. These agreements may have both "dynamic" transaction management related aspects, such as **content** usage control information enforced through budgeting, metering, and/or reporting of electronic information and/or appliance use, and/or they may include "static" electronic assertions... ...using the system to assert his or her agreement to pay for services, not to pass to unauthorized parties electronic information derived from usage of **content** or systems, and/or agreeing to observe copyright laws. Not only can electronically reported transaction related information be trusted under the present invention, but payment user's WAF installation secure subsystem) based upon usage of WAF controlled electronic **content** and/or appliances (such as governments, financial credit providers, and users).

WAF allows the needs of electronic commerce participants to be served and it can bind...  
 ...to support very large amounts of commerce.

WAF's security and metering secure subsystem core will be present at all physical locations where WAF related **content** is (a) assigned usage related  
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control information (rules and mediating data), and/or (b) used. This core can perform security and auditing functions (including... ...as well as system software designed to enable WAF integration into host environments and applications. WAF's usage control information, for example, provide for property **content** and/or appliance related: usage authorization, usage auditing (which may include audit reduction), usage billing, usage payment, privacy filtering, reporting, and security related communication and...  
 ...Electronic commerce technologies that do not, as the . present invention does.

support a broad range of possible, complementary revenue activities,  
 offer a flexible array of **content** usage features most desired by customers, and  
 exploit opportunities for operating efficiencies,

will result in products that are often intrinsically more costly and less appealing...  
...efficiently support merging of control and auditing capabilities in nearly any electronic appliance environment while maintaining overall system security;

(b) modular data structures;

(c) generic **content** model;

(d) general modularity and independence of foundation architectural components;

(e) modular security structures;

(f) variable length and multiple branching chains of control; and

(g... ..and models, and where such model control schemes can  
lievolve" as control information passes through the WAF installations of  
participants of a pathway of WAF **content** control information handling.

## CATALOG CAPABILITIES

Displays linkable pictures and text

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Customizes rendering based on user preferences

Provides multiple ways to traverse the catalog (ease of navigation)

Shows Quick-buy link throughout catalog

Incorporates multiple languages and localized **content**

Integrates to centralized publishing for fresh **content**

Displays guest view of catalog (default set)

Creates personal catalog

Referring to operation 5400 of Figure 54, one embodiment of the electronic commerce component of... ..personalized settings are used each time the display catalog is opened by that particular user. The display format may also be customized to display localized **content**, such as by being based on the location of the user. Text may also be displayed in a language selected by the viewer.

PRODUCT DETAILS...screen and if he or she likes it, he'or she takes it into the shopping basket. During the shopping, he or she examines the **content** of the shopping basket as required to check the item scheduled to purchase and the pay amount of the items. Accordingly, it is not necessary...a selfservice terminal system identified as model NCR 5682, incorporates the data gathering and transaction processing capabilities of conventional automated teller machines with video, graphics, **audio** and printer operations. Interactivity

with the customer is governed by a software system through the use, for example, of a keyboard or an infrared touch...or completing a marketing survey. Third, an online service may charge a content provider for placing certain information on the online service. For example, a **content** provider can be charged for placing an advertisement on the online service. Finally, a **content** provider can be paid by the online service for providing information that users may wish to access, can be can be provided on a for-fee basis. Conversely, an online service provider may wish to pay third party **content** providers for placing useful **material** on the online service.

Thus, when creating a publicly accessible online system, it is desirable to include the

ability to define fee structures for accessing... ..to a "captive audience" that many or most end users remain tuned to the same signal even when the main program to which they are **listening** or viewing is interrupted by advertisements.

Another example of advertising mixed with information dissemination is the use of scrolled text at the bottom of a...like.

Yet another example of mixing advertisements with information dissemination are newspapers and magazines.

Most, and perhaps all such examples of mixing advertisements with information **content** are based on systems in which the end user has actively elected to view or **listen** to a program or to otherwise receive information. Furthermore, in virtually all such systems or media, the juxtaposition or placement of advertisements and information **content** is explicitly programmed or determined by human beings working as "editors" or in a similar **content** and/or presentation editing capacity.

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Distributing information via the Internet or other publicly accessible computer communication networks has been largely unsupported by advertising revenues due to the lack of good mechanisms for mixing advertising and information **content** in such a way as to be acceptable to both end users and advertisers.

There are, of **course**, some exceptions where advertising/**content** mixtures from other contexts, such as newspapers and television, have been simply replicated on the Internet. For instance, some newspapers have been "published" at least in part on the Internet, and include advertisements along with information **content**. In fact, some newspapers sell advertising space on an associated World Wide Web (WWW) site, which often includes extensive listings of certain types of advertisements... ..food and grocery, personal care, hardware and appliances, means that a retailer may have thousands of models or varieties of goods in inventory, each, of **course**, with a concomitant price. The result of this multitude of consumer products is that the control and consistency of pricing has assumed increasing importance, especially...in the stock brokerage area, will provide market pricing of stocks. While these systems can accommodate a continually changing price situation, the actual pricing, of **course**, is independent of the system, i.e., pricing is controlled by the stock market.

The current wide-ranging use of computer systems provides a relatively large potential market to providers of electronic **content** or information. These providers may include, for example, advertisers and other information publishers such as newspaper and magazine publishers. A cost, however is involved with... ..Thus, it would be beneficial to provide a system which allows individual users to control the amount of electronic advertising they receive with their electronic **content**.

In addition, providers of electronic advertisements would be able to subsidize the cost of electronic **content** for end users. The amount of this subsidy would be dependent on the amount of electronic advertising which is consumed by the end users and... ..these consumers. Thus, it would be beneficial to provide a system which allows the providers of electronic advertisements to provide advertising-based subsidization of electronic **content** consumption, based upon the perceived quality of consumers who have specifically chosen to consume these advertisements, cognizant of the fact that consuming these advertisements will subsidize their electronic **content** consumption fees,

#### ORDERPLACEMENT

Collects user information for order processing (shipping, billing)

Recaps order for confirmation (shipping, price, availability)

Allows for order maintenance (qty, product, shipping...publishers, and other distributors, of electronic information,

(2) financial service (e.g. credit) providers,

(3) users of (other than financial service providers) information arising from **content** usage such as **content** specific demographic information and user specific descriptive information. Such users may include market analysts, marketing list compilers for direct and directed marketing, and government agencies,

(4) end users of **content**,

(5) infrastructure service and device providers such as telecommunication companies and hardware manufacturers (semiconductor and electronic appliance and/or other computer system manufacturers) who receive... ..to support the various underlying agreements between parties that comprise this extended agreement. These agreements can define important electronic commerce considerations including.

(1) security,

(2) **content** use control, including electronic distribution,

(3) privacy (regarding, for example, information concerning parties described by medical, credit,

tax, personal, and/or of other forms of confidential information),

(4) management of financial processes, and

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(5) pathways of handling for electronic **content**, **content** and/or appliance control information, electronic **content** and/or appliance usage information and payment and/or credit.

WAF agreements may define the electronic commerce relationship of two or more parties of a... ..but such agreements may, at times, not directly obligate or otherwise directly involve other WAF value chain participants. For example, an electronic agreement between a **content** creator and a distributor may establish both the price to the distributor for a creator's **content** (such as for a property distributed in a WAF container object) and the number of copies of this object that this distributor may distribute to... ..in a three party agreement in which the end-user agrees to certain requirements for using the distributed product such as accepting distributor charges for **content** use and agreeing to

observe the copyright rights of the creator. A third agreement might exist between the distributor and a financial clearinghouse that allows... ..separate (fourth) agreement directly with the clearinghouse extending credit to the end-user. A fifth, evolving agreement may develop between all value chain participants as **content** control information passes along its chain of handling. This evolving agreement can establish the rights of all parties to **content** usage information, including, for example, the nature of information to be received by each party and the pathway of handling of **content** usage information and related procedures. A sixth agreement in this example, may involve all parties to the agreement and establishes certain general assumptions, such as... ..support evolving ("living") electronic agreement arrangements that can be modified by current and/or new participants through very simple to sophisticated "negotiations" between newly proposed **content** control information interacting with control information already in place and/or by negotiation between concurrently proposed **content** control information submitted by a plurality of parties. A ...progressively modified over time in accordance with existing senior rules and such modification may be applied to all, to classes of, and/or to specific **content**, and/or to classes and/or specific users and/or user nodes. A given piece of **content** maybe subject to different control information at different times or places of handling, depending on the evolution of its **content** control

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information (and/or on differing, applicable WAF installation **content** control information). The evolution of control information can occur during the passing along of one or more WAF control information containing objects, that is control... ..modified at one or more points along a chain of control information handling, so long as such modification is allowed. As a result, WAF managed **content** may have different control information applied at both different "locations" in a chain of **content** handling and at similar locations in differing chains of the handling of such **content**. Such different application of control information may also result from **content** control information specifying that a certain party or group of parties shall be subject to **content** control information that differs from another party or group of parties. For example, **content** control information for a given piece of **content** may be stipulated as senior information and therefore not changeable, might be put in place by a **content** creator and might stipulate that national distributors of a given piece of their **content** maybe permitted to make 100,000 copies per calendar quarter, so long as such copies are provided to bona fide end-users, but may pass only a single copy of such **content** to a local retailers and the control information limits such a retailer to making no more than 1,000 copies per month for retail sales to end-users. In addition, for example, an end-user of such **content** might be limited by the same **content** control information to making three copies of such **content**, one for each of three different computers he or she uses (one desktop computer at work, one for a desktop computer at home, and one... ..or currency usage and administration capabilities, (d) privacy protection for usage information a user does not wish to release, and (e) "living" electronic information **content** dissemination models that flexibly accommodate.

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- (1) a breadth of participants,
- (2) one or more pathways (chains) for: the handling of **content**, **content** and/or appliance

control information, reporting of **content** and/or appliance usage related information, and/or payment, (3) supporting an evolution of terms and conditions incorporated into **content** control

information, including use of electronic negotiation capabilities,

(4) support the combination of multiple pieces of **content** to form new content aggregations, and (5) multiple concurrent models.

#### ORDER STATUS AND HISTORY

Provides real-time order status (backorders)

Provides real-time shipping status...

#### Claims:

...Sirtidement Services L a munications- SS CGI I NcSeAF@10/101SCOAIP  
I Email Transport=Virtual Private Networki ServicesWeb Application ServicCommerce  
Content Channels Customer **Content** Mgmt & Education SeRelationship Mgmt  
Publishing ServicesUwe Profile Mc;m 7F@;t2oa @r2pohilities F-70 F chat C2p2tiffiflas  
FC@umclum Go@naTzvl3...656408annoDOWNLOADING DATA-  
602TRANSMITTING DATA BASED ON USER  
SPECIFICATIONS.604PROVIDINGAPLURALITYOFNEWSGROUPSTOWHICHUS  
ERSSUBSCRIBEOUTPUTTING ANSWERS TO FREQUENTLY ASKED  
QUESTIONS RELATING TO THE 6 06**CONTENT**-RELATED WEB APPLICATION  
SERVICESi 6608ENABLING REAL TIME COMMUNICATION BETWEEN A  
PLURALITY OF THE USERSICOORDINATING THE TRANSMISSION OF  
ELECTRONIC MAIL 66106012... ..ITEM EACH TIME A USER USES THE  
SYSTEMLOGGING THE USER'S CURRENT ACTIVITIES AND ENTERING THEM  
6903INTO THE DATABASEFigure 696610DEVELOPING **CONTENT** OF A DATA  
INTERFACE FOR ACCESSING DATA ON ANETWORK1 7002MANAGING THE  
**CONTENT** OF THE DATA INTERFACEAPPROVING THE PUBLICATION OF  
THE **CONTENT** BEFORE TRANSMISSION OF THE 7004**CONTENT**TESTING  
THE **CONTENT** OF THE DATA INTERFACE 70065308Figure 70innGENERATING  
A CURRICULUM OF **COURSE** OFFERINGS7-102ALLOWING THE SELECTION  
OF THE **COURSE** OFFERINGS104EDUCATING USERS OVER A NETWORK1  
7106DISPLAYING A STATUS OF THE EDUCATION OF THE USERS INCLUDING  
AT LEASTONE OF THE **COURSES** COMPLETED AND SCORES FOR THE  
**COURSES** COMPLETED5310Figure 71ALLOWING A USER TO REVIEW  
EDUCATIONAL PROGRAM OFFERINGS72017202RECEIVING THE USER...ACCESS TO AT LEAST ONE  
OF APPLICATION AND SYSTEMDATA BASED ON THE USER VERIFICATION  
DATA7604ENABLING VIRTUAL PRIVATE NETWORKINGFigure  
765314CACHING **CONTENT** OF A NETWORK7702PROVIDING APPLICATION  
PROXY SERVICES ON THE NETWORK704MANAGING RESOURCES OF THE  
NETWORKMANAGING NETWORK OBJECTS ON THE NETWORK 7701108...  
...CAPABILITIES IN THE NETWORK FRAMEWORK904ENABLING NETWORK  
FRAMEWORK BROWSING IN THE NETWORK FRAMEWORK/--

@, @OUTPUTTING ANSWERS TO FREQUENTLY ASKED QUESTIONS  
 RELATING TO THE 7906 **CONTENT**-RELATED WEB APPLICATION  
 SERVICES 1908 PROVIDING NEWS READER CAPABILITIES IN THE NETWORK  
 FRAMEWORK AFFORDING CHAT ROOM CAPABILITIES IN THE NETWORK  
 FRAMEWORK 79107912 ENABLING PLAYBACK... ..CALL CENTERS OVER THE  
 NETWORK FRAMEWORK 5811 Figure 81 PROVIDING LOCATOR CAPABILITIES  
 OVER A NETWORK FRAMEWORK 8200 TRANSMITTING AT LEAST ONE OF  
 STREAMING VIDEO AND **AUDIO** DATA 8202 OVER THE NETWORK  
 FRAMEWORK 8204 LOGGING EVENTS OVER THE NETWORK  
 FRAMEWORK PASSIVELY MANAGING USER PROFILE INFORMATION OVER  
 THE 8206 NETWORK FRAMEWORK..... .....5326 Figure...THE USER TO  
 SELECTIVELY POSITION THE DELIVERED CONTENTS ON THE DISPLAY Figure  
 969710. 4 Identification Customer @73097 1 2 Information Capture  
 Selection 9714 **Content** Catalog 973297113 @j Matching Logic Customer 9718 4  
 Acquisition **Content** Merge 7= : j49720 9734 Administration Customer Personalization:  
 Extension 97369700 Customer Retention Interactive 9702 Figure 97 Market 970097149710  
 9712 DATA WAREHOUSE **CONTENT** CATALOG NzwEL, L4 2 w4 <MATCHING  
 HTML PAGE 3 INFORMATION LOGIC User aLu < zw 0Qz INTENT MERGE 0...  
 ...HTML PAGES INFORMATION zwz zUj 0z0 PRODUCTS GRAPH I10104 Figure  
 10110200 SITE NAVIGATION ---I\* E:::JIT E:10202 DCA I STATIC  
**CONTENT** DYNAMIC **CONTENT** AREAS 1 0204 DCA 2J 10206 DCA 3 Figure  
 102 HTML TEMPLATE MONITORING OPERATION OF ENTITIES SELECTED  
 FROM THE 10402 GROUP CONSISTING OF SERVER PROCESSES, DISK...  
 ...ACCESS TIME TO A SERVER, AND A NUMBER OF CONNECTIONS IN AN E-  
 COMMERCE SYSTEM UPDATING ITEMS SELECTED FROM THE GROUP  
 CONSISTING OF 10404 MERCHANDISING **CONTENT**, CURRENCY EXCHANGE  
 RATES, TAX RATES, AND PRICING IN THE E-COMMERCE SYSTEM  
 AT PREDETERMINED INTERVALS 10406 SYNCHRONIZING EXTERNAL DATA  
 STORED SEPARATELY FROM THE E-COMMERCE SYSTEM...

**Dialog eLink:** [Order File History](#)  
 7/K/68 (Item 30 from file: 349)  
 DIALOG(R) File 349: PCT FULLTEXT  
 (c) 2009 WIPO/Thomson. All rights reserved.

	Country	Number	Kind	Date
Patent				19

### Detailed Description:

...platform-independent Java applets." Java applets are small, specialized applications that comply with Sun's Java Application Programming Interface (API) allowing developers to

add "interactive **content**" to Web documents (e.g., simple animations, page adornments, basic games, etc.). Applets execute within a Java-compatible browser (e.g., Netscape Navigator) by copying... ..Another technology that provides similar function to JAVA is provided by Microsoft and ActiveX Technologies, to give developers and Web designers wherewithal to build dynamic **content** for the Internet and personal computers. ActiveX includes tools for developing animation, 3-D virtual reality, video and other multimedia **content**. The tools use **Internet** standards, work on multiple platforms, and are being supported by over 100 companies. The group's building blocks are called ActiveX Controls, small, fast components... ..from a set of basic components, and also about the interrelations among the components. And it is a discipline whereby all these things come together - **materials**, space, people - to bring something into being that was. not there before.

Although building architects have not always been pleased about it, architectural concepts have... ..just a thing. This process can be described at a very high level using Figure 2.

Step 1: Analyze 202. The architect must begin by **listening** to and researching the needs of the client. What is the function ...The architect creates one or several designs showing the layout of the structure, how different spaces fit together, how everything looks from different views, what **materials** are to be used, and so forth.

Step 3: Model & Test 206. Not every architectural project has this step, but in many cases, the architect... ..building, in general accord with the blueprints and prototype.

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31

effectively. Architects themselves may not be involved in... ..all environments  
To ensure that you are asking the right questions about the technology architecture, you must refer to the Architecture Checklist (available from the **Content** Finder). Questions will include.

For all technology components, have the **following** characteristics been addressed.

Performance according to specifications?

Reliability of operation?

Ease of operation?

Maintenance requirements9

37

Ability to interface with other components, particularly those from...capabilities for the presentation of data (text,,sound, video, etc.).

The ability to digitize, organize, and deliver textual, graphical and other information (e.g., video, **audio**, etc.) in addition to traditional data to a broader audience, enables new  
...computing has a greater impact on the entire business enterprise, hence greater

opportunity and risk.

Definitions of Netcentric may vary. One is about reach and **content**.

Netcentric is not just electronic commerce; it can impact enterprises internally as well.

You can begin identifying Netcentric opportunities for clients today.

There are three... ..Technology, etc. is an emerging architecture style which expands the reach of computing both within and outside the enterprise. Netcentric enables sharing of data and **content** between individuals and applications.

These applications provide capabilities to publish, interact or transact. Netcentric represents an evolution of Client/Server which may utilize internet technologies...1308 Web Browser Services allow users to view and interact with applications and documents made up of varying data types, such as text, graphics, and **audio**. These services also provide support for navigation within and across documents no matter where they are located, through the use of links embedded into the document **content**. Web Browser Services retain the link connection, i.e., document physical location, and mask the complexities of that connection from the user.

Web Browser services scripts and objects to apply multiple style sheets to Web pages to create dynamic **content**. CSS can also be used to centralize control of layout attributes for multiple pages within a Web site, thus avoiding the tedious process of changing... ..document objects accessible to scripting languages such as JavaScript and VisualBasic Script (VBScript), which can be used to change the appearance, location, and even the **content** of those objects in real-time.

Microsoft's Internet Explorer 4.0 supports a WK "Working Draft" DOM specification that uses the CSS standard for... ..to use XML as the underlying language for new Web standards and applications. Microsoft uses XML for its Channel Definition Format, a Web-based "push" **content** delivery system included in Internet Explorer 4 Netscape will use XML in its Meta

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**Content** Framework to describe and store metadata, or collections of information, in forthcoming versions Of COMMunicator. XML is currently playing an important role the realm of... ..and objects with VRML, users need a VRML editor such as Silicon Graphics' Cosmo Worlds (<http://Hcosmo.sgi.com/products/studio/worlds>). To view VRML **content**, users need either a VRML browser or a VRML plug-in for standard HTML browsers.

Leading VRML plug-ins include Cosmo Player from Silicon Graphics... ..typically be downloaded for free from the Web.

VRML is capable of displaying static and animated objects and supports hyperlinks to multimedia forinats such as **audio** clips, video files, and graphical images. As users

maneuver through VRML worlds, the landscape shifts to match their movements and give the impression that they...in a Synchronized Multimedia Integration Language (SMIL), a new markup language being developed by the W3C. SMIL will allow Web authors to deliver television-like **content** over the Web using less bandwidth and a simple text editor, rather than intricate scripting.

SMIL is based on XML and does not represent a specific media format. Instead, SMIL defines the tags that link different media types together. The language enables Web authors to sort multimedia **content** into separate **audio**, video, text, and image files and streams which are sent to a user's browser. The SMIL tags then specify the "schedule" for displaying those... Web Browsers require new or at least revised development tools for working with new languages and standards such as HTML, ActiveX and Java. Many browser **content** development tools are available. The following are several representative products.

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Netscape LiveWire and LiveWire Pro - visual tool suite designed for building and managing complex...context of a browser, ActiveX controls add functionality to Web pages. These controls can be written to add new features like dynamic charts, animation or **audio**.

#### Implementation considerations

Viewers and plug-ins are some of the most dynamic segments of the browser market due to quickly changing technologies and companies. What... often becomes a built-in capability of the browser in its next release.

Exemplary products that may be used to implement this component include Real **Audio** Player; VDOLive; Macromedia Shockwave; Internet Phone; Web 3270.

Real **Audio** Player - a plug-in designed to play **audio** and video in real-time on the Internet without requiring to download the entire **audio** file **before** you can begin **listening**, or a video file **before** you can begin **viewing**. Macromedia Shockwave - a plug-in used to play back complex multimedia documents created using Macromedia Director or other products.

Internet Phone - one of several applications...multi-participant worlds. Provides support for ActiveX.

DimensionX Liquid Reality - VRML 2.0 platform written in Java, which provides both a viewer for viewing VRML **content** and a toolkit of Java classes for creating powerful 3D applications. It supports more than 250 classes for 3-D **content** creation.

#### Report and Print 1316

Report and Print Services support the creation and on-screen previewing of paper or photographic documents which contain screen data... on an icon to launch a report. Because these run-time applications are smaller than non-nal applications, they launch

faster and require very little **training** to operate. (source is market research)

Product considerations

Buy vs. Build

There are numerous packaged controls on the market today that support basic report and...these products to provide document management services.

Access 1408

Access Services support document creation, maintenance and retrieval. These services allow users to capture knowledge or **content** through the creation of unstructured information, i.e.

documents. Access Services allow users to effectively retrieve documents that were created by them and documents that were created by others. Documents can be comprised of many different data types, including text, charts, graphics, or even **audio** and video.

Security 1410

Documents should be accessed exclusively through the document management backbone. If a document is checked-in, check-out, routed, viewed, annotated... ..editing the same data, document management access control services include check-in/check-out services to limit concurrent editing.

Indexing 1412

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Locating documents and **content** within documents is a more complex problem and involves several alternative methods. The Windows file manager is a simplistic implementation of a hierarchical organization of... ..1414

108

Storage Services manage the document physical storage. Most document management products store documents as objects that include two basic data types: attributes and **content**. Document attributes are key fields used to identify the document, such as author name, created date, etc.

Document **content** refers to the actual unstructured information stored within the document.

Generally, the documents are stored in a repository using one of the following methods.

Proprietary...network interface perspective, it should be easier to port an application from one computing platform to another if the application is using communications middleware. Of **course**, other porting issues will need to be considered.

Virtual Resources 1502

Virtual Resource services proxy or mimic the capabilities of specialized, network-connected resources. This...workstation, translate it into an IP data stream, and route it through the Internet to a destination workstation, where the data is translated back into

## **audio.**

Desktop Voice Mail - Various products enable users to manage voice mail messages using a desktop computer.

### Possible Product Options

Lucent PassageWay; COM2001 s TransCOM; NetSpeaks... ..client and server utilities for spooling print jobs. Related programs include lpr (sends print job to spool) and Ip (sends request to printer).

### Audio/Video 1522

**Audio/Video** services allow nodes to interact with multimedia data streams. These services may be implemented as **audio**-only, video-only, or combined **audio/video**.

**Audio** services - **Audio** services allow components to interface with **audio** streams such as the delivery of music or radio **content** over data networks.

Video services - Video services allow components to interface with video streams such as video surveillance. Video services can add simple video monitor capabilities to a computer, or they can transform the computer into a sophisticated video platform with the ability to generate and manipulate video.

Combined **Audio/Video** services - Video and **audio content** is often delivered simultaneously. This may be accomplished by transferring separate **audio** and video streams or by transferring a single interleaved stream. Examples include video conferencing and television (traditional or interactive).

**Audio/Video** services can include the following functionality.

Streams **content** (**audio**, video, or both) to end users

Manages buffering of data stream to ensure uninterrupted viewing/**listening**

Performs compression and decompression of data

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Manages communications protocols to ensure smooth delivery of **content**

Manages library of stored **content** and/or manages generation of live **content**

**Audio/Video** services draw upon lower-level services such as streaming and IP Multicast in order to efficiently deliver **content** across the network.

### Possible Product Options

Progressive Networks RealVideo; Microsoft's NetShow; Vxtremes Web Theater; Intels ProShare; Creative Labs Video WebPhone

The following products are...middleware technology based on an event-driven publish/subscribe model for information distribution. Developed and patented by TIBCO, the event-driven, publish/subscribe strategy allows **content** to be distributed on an event basis as it becomes available. Subscribers receive **content** according to topics of interest that are specified once by the subscriber, instead of repeated requests for updates. Using

11? Multicast, TEBnet does not clog... ..the most efficient real-time information delivery possible.

#### Streaming 1536

Streaming is the process of transferring time-sensitive data streams (e.g., video and/or **audio**) in real-time. Streaming differs from the other types of Core Messaging services in that it delivers a continuous, one-way stream of data, rather... ..is one-way from the server to the client, the client can issue stream controls to the server.) Streaming may be used to deliver video, **audio**, and/or other real-time **content** across the Internet or within enterprise networks.

Streaming is an emerging technology. While some multimedia products use proprietary streaming mechanisms, other products incorporate standards. The...Multi-part Internet Mail Extensions (MIME) standard has gained acceptance as the Internet mechanism for sending E-mail containing various multimedia parts, such as images, **audio** files, and movies. S/T

#### 4E

4E, or secure MIME adds encryption and enables a secure mechanism for transferring files.

Although currently POP3 is the...an access control policy. A variety of mechanisms exist for protecting private networks including.

Filters - World Wide Web filters can prevent users from accessing specified **content** or Internet addresses. Products can limit access based on keywords, network addresses, time-of-day, user categories, etc.

#### 163

Application Proxies - An application-level proxy... ..of the week, and restrict access to certain sites altogether.

#### 164

Netscape Proxy Server - high-performance server software for replicating and filtering access to Web **content** on the Internet or an intranet. Provides access control, URL filtering, and virus scanning.

#### filters

Check Point FireWall-1 - combines Internet, intranet and remote user...protocols (e.g., Ethernet, Token Ring), switching simply directs packets according to a table of physical addresses. The switch can build the table

#### 171

by "**listening**" to network traffic and determining which network nodes are connected to which switch port.

Some protocols such as Frame Relay involve defining permanent routes (permanent...schemes include the following.

CSMA/CD - Carrier Sense Multiple Access with Collision Detection. A method by which multiple nodes can access a shared physical media by "**listening**" until no other transmissions are detected and then transmitting and checking to see if simultaneous transmission occurred.

token passing - A method of managing access to...ActiveX container. Therefore, any ActiveX control can be downloaded to, and plugged into the browser. This allows for executable components to be interleaved with HTML **content** and downloaded as needed by the Web browser.

2. JavaBeans - is Sun Microsystems proposed framework for building Java components and containers. The intent is to...to be communicated to the subscriber list. Traditional Internet users "surf" the Web by actively moving from one Web page to another, manually searching for **content** they want and "pulling" it back to the desktop via a graphical browser. But in the push model, on which subscription servers are based on, **content** providers can broadcast their information directly to individual users' desktops. The technology uses the Internet's strengths as a two-way conduit by allowing people to specify the type of **content** they want to receive.

**Content** providers then seek to package the requested information for automatic distribution to the user's PC.

Depending upon requirements, synchronous or asynchronous push/pull services... ..have expressed an interest in.

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PointCast; Marimba; IBM/Lotus; Microsoft; Netscape; America Online; BackWeb; Wayfarer Castanet from Marimba - distributes and maintains software applications and **content** within an organization or across the Internet, ensuring subscribers always have the most up-to-date information automatically.

PointCast - news network that appears instantly on...an essay explaining why you should be promoted. This

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essay and your personnel file must be routed to numerous individuals who must review the **material** and approve your promotion. Workflow services coordinate the collection and routing of your essay and your personnel file.

The business processes can be of a...business objects.

So what is the right size for a Business Component?

268

Business Components should encapsulate concepts that are significant to the business domain.

Of **course**, this is subjective, and it certainly varies by business domain. In fact, business domain experts, with help from component modelers, are in the best position...

**Dialog eLink:** Order File History  
7/K/69 (Item 31 from file: 349)  
DIALOG(R)File 349: PCT FULLTEXT  
(c) 2009 WIPO/Thomson. All rights reserved.

	Country	Number	Kind	Date
Patent				19

### Detailed Description:

...flowchart for a method for providing a self-describing stream-based communication system in accordance with an embodiment of the present invention; Figure 106 illustrates **two** systems communicating via Stream-Based Communication. and using a shared generic format to relay the meta-data information;  
Figure 107 illustrates an object-based system...design and development effort for software can be achieved. A preferred embodiment of the invention utilizes HyperText Markup Language (HTML) to implement documents on the **Internet** together with a general-purpose secure communication protocol for a transport medium between the client and the Newco. HTTP or other protocols could be readily... ...platform-independent Java applets." Java applets are small, specialized applications that comply with Sun's Java Application Programming Interface (API) allowing developers to add "interactive **content**" to Web documents (e.g., simple animations, page adornments, basic games, etc.). Applets execute within a Java-compatible browser (e.g., Netscape Navigator) by copying... ...Another technology that provides similar function to JAVA is provided by Microsoft and ActiveX Technologies, to give developers and Web designers wherewithal to build dynamic **content** for the **Internet** and personal computers. ActiveX includes tools for developing animation, 3-D virtual reality, video and other multimedia **content**. The tools use **Internet** standards, work on multiple platforms, and are being supported by over 100 companies. The group's building blocks are called ActiveX Controls, small, fast components things come together - **materials**, space, people - to bring something into being that was not there before.

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SMIL is based on XML and does not represent a specific media format. Instead, SMIL defines the tags that link different media types together. The language enables Web authors to sort multimedia **content** into separate **audio**, video, text, and image files and streams which are sent to a user's browser. The SMIL tags then specify the "schedule" for displaying those... ..Web Browsers require new or at least revised development tools for working with new languages and standards such as HTML, ActiveX and Java. Many browser **content** development tools are available. The following are several representative products.

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Report and Print Services, support the creation and on-screen previewing of paper or photographic documents which contain screen data...these products to provide document management services.

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Access Services support document creation, maintenance and retrieval. These services allow users to capture knowledge or **content** through the creation of unstructured information, i.e.

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Documents should be accessed exclusively through the document management backbone. If a document is checked-in, check-out, routed, viewed, annotated... ..from editing the same data, document management access control services include check-in/check-out services to limit concurrent editing.

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Storage Services manage the document physical storage. Most document management products store documents as objects that include two basic data types: attributes and **content**. Document attributes are key fields used to identify the document, such as author name, created date, etc.

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Generally, the documents are stored in a repository using one of the following methods.

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Virtual Resources 1502

Virtual Resource services proxy or mimic the capabilities of specialized, network-connected resources. This...workstation, translate it into an IP data stream, and route it through the Internet to a destination workstation, where the data is translated back into **audio**.

Desktop Voice Mail - Various products enable users to manage voice mail messages using a desktop computer.

Possible Product Options

Lucent PassageWay; COM2001 s TransCOM; NetSpeaks...and server utilities for spooling print jobs. Related programs include lpr (sends print job to spool) and lp (sends request to printer).

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Audio/Video 1522

**Audio**/Video services allow nodes to interact with multimedia data streams. These services may be implemented as **audio**-only, video-only, or combined **audio**/video.

**Audio** services - **Audio** services allow components to interface with **audio** streams such as the delivery of music or radio **content** over data networks.

Video services - Video services allow components to interface with video streams such as video surveillance. Video services can add simple video monitor capabilities to a computer, or they can transform the computer into a sophisticated video platform with the ability to generate and manipulate video.

Combined **Audio**/Video services - Video and **audio content** is often delivered simultaneously. This may be accomplished by transferring separate **audio** and video streams or by transferring a single interleaved stream. Examples include video conferencing and television (traditional or interactive).

**Audio**/Video services can include the following functionality.

Streams **content** (**audio**, video, or both) to end users

Manages buffering of data stream to ensure uninterrupted viewing/**listening**

Performs compression and decompression of data

Manages communications protocols to ensure smooth delivery of **content**

Manages library of stored **content** and/or manages generation of live **content**

**Audio**/Video services draw upon lower-level services such as streaming and IP Multicast in order to efficiently deliver **content** across the network.

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Possible Product Options

Progressive Networks RealVideo; Microsoft's NetShow; Vxtremes Web Theater; Intels ProShare; Creative Labs Video WebPhone

The following products...on an event-driven publish/subscribe model for

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information distribution. Developed and patented by TIBCO, the event-driven, publish/subscribe strategy allows **content** to be distributed on an event basis as it becomes available. Subscribers receive **content** according to topics of interest that are specified once by the subscriber, instead of repeated requests for updates. Using EP Multicast, TE3net: does not clog... ..the most efficient real-time information delivery possible.

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Streaming is the process of transferring time-sensitive data streams (e.g., video and/or **audio**) in real-time. Streaming differs from the other types of Core Messaging services in that it delivers a continuous, one-way stream of data, rather... ..is one-way from the server to the client, the client can issue stream controls to the server.) Streaming may be used to deliver video, **audio**, and/or other real-time **content** across the Internet or within enterprise networks.

Streaming is an emerging technology. While some multimedia products use proprietary streaming mechanisms, other products incorporate standards. The...part Internet Mail Extensions (ME

4E) standard has gained acceptance as the Internet mechanism for sending E-mail containing various multimedia parts, such as images, **audio** files, and movies. S/MWE, or secure MIME adds encryption and enables a secure mechanism for transferring files.

Although currently POP3 is the popular Internet...an access control policy. A variety of mechanisms exist for protecting private networks including.

Filters - World Wide Web filters can prevent users from accessing specified **content** or Internet addresses. Products can limit access based on keywords, ...days of the week, and restrict access to certain sites altogether.

Netscape Proxy Server - high-performance server software for replicating and filtering access to Web **content** on the Internet or an intranet. Provides access control, URL filtering, and virus scanning.

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Depending upon requirements, synchronous or asynchronous push/pull... ...they have expressed an interest in.

PointCast; Marimba; IBM/Lotus; Microsoft; Netscape; America Online; BackWeb; Wayfarer Castanet from Marimba - distributes and maintains software applications and **content** within an organization or across the Internet, ensuring subscribers always have the most up-to-date information automatically.

PointCast - news network that appears instantly on...complete an essay explaining why you should be promoted. This essay and your personnel file must be routed to numerous individuals who must review the **material** and approve your promotion. Workflow services coordinate the collection and routing of your essay and your personnel file.

engineering applications to automate the business value...grained business objects.

So what is the right size for a Business Component?

Business Components should encapsulate concepts that are significant to the business domain.

Of **course**, this is subjective, and it certainly varies by business domain. In fact, business domain experts, with help from component modelers, are in the best position...

**Dialog eLink:** Order File History  
7/K/70 (Item 32 from file: 349)  
DIALOG(R)File 349: PCT FULLTEXT  
(c) 2009 WIPO/Thomson. All rights reserved.

	Country	Number	Kind	Date
Patent				19

### Detailed Description:

...flowchart for a method for providing a self-describing stream-based communication system in accordance with an embodiment of the present invention; Figure 106 illustrates **two** systems communicating via Stream-Based Communication and using a shared generic format to relay the meta-data information;

Figure 107 illustrates an object-based system...Nov. 1995); and R. Fielding, H. Frystyk, T. Berners-Lee, J. Gettys and J.C. Mogul, "Hypertext Transfer Protocol -- HTTP/1.1: HTTP Working Group **Internet** Draft" (May 2, 1996). HTML is a simple data format used to create hypertext documents that are portable from one platform to another. HTML documents... ..platform-independent Java applets." Java applets are small, specialized applications that comply with Sun's Java Application Programming Interface (API) allowing developers to add "interactive **content**" to Web documents (e.g., simple animations, page adornments, basic games, etc.). Applets execute within a Java-compatible browser (e.g., Netscape Navigator) by copying... ..Another technology that provides similar function to JAVA is provided by Microsoft and ActiveX Technologies, to give developers and Web designers wherewithal to build dynamic **content** for the Internet and personal computers. ActiveX includes tools for developing animation, 3-D virtual reality, video and other multimedia **content**. The tools use Internet standards, work on multiple platforms, and are being supported by over 100 companies. The group's building blocks are called ActiveX... ..from a set of basic components, and also about the interrelations among the components. And it is a discipline whereby all these things come together - **materials**, space, people - to bring something into being that was not there before.

Although building architects have not always been pleased about it, architectural concepts have...just a thing. This process can be described at a very high level using Figure 2.

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To ensure that you are asking the right questions about the technology architecture, you must refer to the Architecture Checklist (available from the **Content** Finder). Questions will include.

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Definitions of Netcentric may vary. One is about reach and **content**.

Netcentric is not just electronic commerce; it can impact enterprises internally as well.

You can begin identifying Netcentric opportunities for clients today.

There are three...Technology, etc. is an emerging architecture style which expands the reach of computing both within and outside the enterprise. Netcentric enables sharing of data and **content** between individuals and applications.

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**Dialog eLink:** Order File History  
7/K/71 (Item 33 from file: 349)  
DIALOG(R)File 349: PCT FULLTEXT  
(c) 2009 WIPO/Thomson. All rights reserved.

	Country	Number	Kind	Date
Patent				19

### Detailed Description:

...design and development effort for software can be achieved. A preferred embodiment of the invention utilizes HyperText Markup Language (HTML) to implement documents on the **Internet** together with a general- ...platform-independent Java applets." Java applets are small, specialized applications that comply with Sun's Java Application Programming Interface (API) allowing developers to add "interactive **content**" to Web documents (e.g., simple animations, page adornments, basic games, etc.). Applets execute within a Java-compatible browser (e.g., Netscape Navigator) by copying... ..Another technology that provides similar function to JAVA is provided by Microsoft and ActiveX Technologies, to give developers and Web designers wherewithal to build dynamic

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SMIL is based on XML and does not represent a specific media format. Instead, SMIL defines the tags that link different media types together. The language enables Web authors to sort multimedia **content** into separate **audio**, video, text, and image files and streams which are sent to a user's browser. The SMEL tags then specify the "schedule" for displaying those... Web Browsers require new or at least revised development tools for working with new languages and standards such as HTML, ActiveX and Java. Many browser **content** development tools are available. The following are several representative products.

83

Netscape LiveWire and LiveWire Pro - visual tool suite designed for building and managing complex...context of a browser, ActiveX controls add functionality to Web pages. These controls can be written to add new features like dynamic charts, animation or **audio**.

#### Implementation considerations

Viewers and plug-ins are some of the most dynamic segments of the browser market due to quickly changing technologies and companies. What... often becomes a built-in capability of the browser in its next release.

Exemplary products that may be used to implement this component include Real **Audio** Player; VDOLive; Macromedia Shockwave; Internet Phone; Web 3270.

Real **Audio** Player - a plug-in designed to play **audio** and video in real-time on the Internet without requiring to download the entire **audio** file before you can begin **listening**, or a video file before you can begin viewing. Macromedia Shockwave - a plug-in used to play back complex multimedia documents created using Macromedia Director...worlds. Provides support for ActiveX.

f@--:Zt - - - DimensionX Liquid Reality - VRML 2.0 platform written in Java, which provides both a viewer for viewing VRML **content** and a toolkit of Java classes for creating powerful 3D applications. It supports more than 250 classes for 3-D **content** creation.

#### Report and Print 1316

Report and Print Services support the creation and on-screen previewing of paper or photographic documents which contain screen data...these products to provide document management services.

#### Access 1408

Access Services support document creation, maintenance and retrieval. These services allow users to capture knowledge or **content** through the creation of unstructured information, i.e.

documents. Access Services allow users to effectively retrieve documents that were

created by them and documents that were created by others. Documents can be comprised of many different data types, including text, charts, graphics, or even **audio** and video.

#### Security 1410

Documents should be accessed exclusively through the document management backbone. If a document is checked-in, check-out, routed, viewed, annotated... ..editing the same data, document management access control services include check-in/check-out services to limit concurrent editing.

#### Indexing 1412

107

Locating documents and **content** within documents is a more complex problem and involves several alternative methods. The Windows file manager is a simplistic implementation of a hierarchical organization of...1414

109

Storage Services manage the document physical storage. Most document management products store documents as objects that include two basic data types: attributes and **content**. Document attributes are key fields used to identify the document, such as author name, created date, etc.

Document **content** refers to the actual unstructured information stored within the document.

Generally, the documents are stored in a repository using one of the following methods.

Proprietary... ..network interface perspective, it should be easier to port an application from one computing platform to another if the application is using communications middleware. Of **course**, other porting issues will need to be considered.

#### Virtual Resources 1502

Virtual Resource services proxy or mimic the capabilities of specialized, network-connected resources. This...workstation, translate it into an IP data stream, and route it through the Internet to a destination workstation, where the data is translated back into **audio**.

Desktop Voice Mail - Various products enable users to manage voice mail messages using a desktop computer.

#### Possible Product Options

Lucent PassageWay; COM2001s TransCOM; NetSpeaks WebPhone... ..client and server utilities for spooling print jobs. Related programs include lpr (sends print job to spool) and lp (sends request to printer).

#### AudioVideo 1522

**Audio**/Video services allow nodes to interact with multimedia data streams. These services may be implemented as **audio**-only, video-only, or combined **audio**/video.

**Audio services** - **Audio** services allow components to interface with **audio** streams such as the delivery of music or radio **content** over data networks.

**Video services** - Video services allow components to interface with video streams such as video surveillance. Video services can add simple video monitor capabilities to a computer, or they can transform the computer into a sophisticated video platform with the ability to generate and manipulate video.

**Combined Audio/Video services** - Video and **audio content** is often delivered simultaneously. This may be accomplished by transferring separate **audio** and video streams or by transferring a single interleaved stream. Examples include video conferencing and television (traditional or interactive).

**Audio/Video services** can include the following functionality.

Streams **content** (**audio**, video, or both) to end users

Manages buffering of data stream to ensure uninterrupted viewing/**listening**

Performs compression and decompression of data

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Manages communications protocols to ensure smooth delivery of **content**

Manages library of stored **content** and/or manages generation of live **content**

**Audio/Video services** draw upon lower-level services such as streaming and IP Multicast in order to efficiently deliver **content** across the network.

Possible Product Options

Progressive Networks RealVideo; Microsoft's NetShow; Vxtremes Web Theater; Intels ProShare; Creative Labs Video WebPhone

The following products are...middleware technology based on an event-driven publish/subscribe model for information distribution. Developed and patented by TIIBCO, the event-driven, publish/subscribe strategy allows **content** to be distributed on an event basis as it becomes available. Subscribers receive **content** according to topics of interest that are specified once by the subscriber, instead of repeated requests for updates. Using IP Multicast, TEBnet does not clog... ..the most efficient real-time information delivery possible.

Streaming 1536

Streaming is the process of transferring time-sensitive data streams (e.g., video and/or **audio**) in real-time. Streaming differs from the other types of Core Messaging services in that it delivers a continuous, one-way stream of data, rather... ..is one-way from the server to the client, the client can issue stream controls to the server.) Streaming may be used to deliver video, **audio**, and/or other real-time **content** across the Internet or within enterprise networks.

143

Streaming is an emerging technology. While some multimedia products use proprietary

streaming mechanisms, other products incorporate standards...Multi-part Internet Mail Extensions (MIME) standard has gained acceptance as the Internet mechanism for sending E-mail containing various multimedia parts, such as images, **audio** files, and movies. S/1  
41ME, or secure MIME adds encryption and enables a secure mechanism for transferring files.

Although currently POP3 is the popular...an access control policy. A variety of mechanisms exist for protecting private networks including.

Filters - World Wide Web filters can prevent users from accessing specified **content** or Internet addresses. Products can limit access based on keywords, network addresses, time-of-day, user categories, etc.

164

Application Proxies - An application-level proxy...the week, and restrict access to certain sites altogether.

165

Netscape Proxy Server - high-performance server software for replicating and filtering access to Web **content** on the Internet or an intranet. Provides access control, URL filtering, and virus scanning.

filters

Check Point FireWall-1 - combines Internet, intranet and remote user...protocols (e.g., Ethernet, Token Ring), switching simply directs packets according to a table of physical addresses. The switch can build the table

172

by "**listening**" to network traffic and determining which network nodes are connected to which switch port.

Some protocols such as Frame Relay involve defining permanent routes (permanent...schemes include the following.

CSMA/CD - Carrier Sense Multiple Access with Collision Detection: A method by which multiple nodes can access a shared physical media by "**listening**" until no other transmissions are detected and then transmitting and checking to see if simultaneous transmission occurred.

token passing - A method of managing access to...ActiveX container. Therefore, any ActiveX control can be downloaded to, and plugged into the browser. This allows for executable components to be interleaved with HTML **content** and downloaded as needed by the Web browser.

2. JavaBeans - is Sun Microsystems proposed framework for building Java components and containers. The intent is to...to be communicated to the subscriber list. Traditional

Internet users "surf" the Web by actively moving from one Web page to another, manually searching for **content** they want and "pulling" it back to the desktop via a graphical browser. But in the push model, on which subscription servers are based on, **content** providers can broadcast their information directly to individual users' desktops. The technology uses the Internet's strengths as a two-way conduit by allowing people to specify the type of **content** they want to receive.

**Content** providers then seek to package the requested information for automatic distribution to the user's PC.

Depending upon requirements, synchronous or asynchronous push/pull services... ..have expressed an interest in.

221

PointCast; Marimba; 113M/Lotus; Microsoft; Netscape; America Online; BackWeb; Wayfarer Castanet from Marimba - distributes and maintains software applications and **content** within an organization or across the Internet, ensuring subscribers always have the most up-to-date information automatically.

PointCast - news network that appears instantly on...an essay explaining why you should be promoted. This

237

essay and your personnel file must be routed to numerous individuals who must review the **material** and approve your promotion. Workflow services coordinate the collection and routing of your essay and your personnel file.

The business processes can be of a...business objects.

So what is the right size for a Business Component?

269

Business Components should encapsulate concepts that are significant to the business domain.

Of **course**, this is subjective, and it certainly varies by business domain. In fact, business domain experts, with help from component modelers, are in the best position...

**Dialog eLink:** Order File History

7/K/72 (Item 34 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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	Country	Number	Kind	Date
Patent				19

### Detailed Description:

...the previously mentioned scenario; Figure 100 illustrates a flowchart for a method for interfacing a naming service and a client with the naming service allowing **access** to a plurality of different sets of services from a plurality of globally addressable interfaces in accordance with an embodiment of the present invention; Figure...Nov. 1995); and R. Fielding, H. Frystyk, T. Berners-Lee, J. Gettys and J.C. Mogul, "Hypertext Transfer Protocol -- HTTP/ 1. 1: HTTP Working Group **Internet** Draft." (May 2, 1996). HTML is a simple data format used to create hypertext documents that are portable from one platform to another. HTML documents... ..platform-independent Java applets." Java applets are small, specialized applications that comply with Sun's Java Application Programming Interface (API) allowing developers to add "interactive **content**" to Web documents (e.g., simple animations, page adornments, basic games, etc.). Applets execute within a Java-compatible browser (e.g., Netscape Navigator) by copying... ..Another technology that provides similar function to JAVA is provided by Microsoft and ActiveX Technologies, to give developers and Web designers wherewithal to build dynamic **content** for the Internet and personal computers. ActiveX includes tools for developing animation, 3-D virtual reality, video and other multimedia **content**. The tools use Internet standards, work on multiple platforms, and are being supported by over 1 00 companies. The group's building blocks are called... ..from a set of basic components, and also about the interrelations among the components. And it is a discipline whereby all these things come together - **materials**, space, people - to bring something into being that was not there before.

Although building architects have not always been pleased about it, architectural concepts have...just a thing. This process can be described at a very high level using Figure 2.

Step 1: Analyze 202. The architect must begin by **listening** to and researching the needs of the client. What is the function of the building? What is its environment? What are the limitations set by... ..The architect creates one or several designs showing the layout of the structure, how different spaces fit together, how everything looks from different views, what **materials** are to be used, and so forth.

Step 3: Model & Test 206. Not every architectural project has this step, but in many cases, the architect... ..building, in general accord with the blueprints and prototype.

Step 5: Operate and Evolve 210. The building is to be lived in and used, of **course**, and so an important step is to ensure that the finished product is tended and operated

3 1

effectively. Architects themselves may not be involved...all environments

To ensure that you are asking the right questions about the technology architecture, you must refer to the Architecture Checklist (available from the **Content** Finder). Questions

will include.

For all technology components, have the following characteristics been addressed.

Performance according to specifications?

Reliability of operation?

Ease of operation...capabilities for the presentation of data (text, sound, video, etc.).

The ability to digitize, organize, and deliver textual, graphical and other information (e.g., video, **audio**, etc.) in addition to traditional data to a broader audience, enables new methods for people and enterprises to work together. Netcentric technologies (e.g., HTML...computing has a greater impact on the entire business enterprise, hence greater opportunity and risk.

Definitions of Netcentric may vary. One is about reach and **content**.

Netcentric is not just electronic commerce; it can impact enterprises internally as well.

You can begin identifying Netcentric opportunities for clients today.

There are three reach of computing both within and outside the enterprise. Netcentric enables sharing of data and **content** between individuals and applications.

These applications provide capabilities to publish, interact or transact. Netcentric represents an evolution of Client/Server which may utilize internet technologies...1308 Web Browser Services allow users to view and interact with applications and documents made up of varying data types, such as text, graphics, and **audio**. These services also provide support for navigation within and across documents no matter where they are located, through the use of links embedded into the document **content**. Web Browser Services retain the link connection, i.e., document physical location, and mask the complexities of that connection from the user.

Web Browser services...are displayed in Web pages.

With CSS, authors can use programming scripts and objects to apply multiple style sheets to Web pages to create dynamic **content**. CSS can also be used to centralize control of layout attributes for multiple pages within a Web site, thus avoiding the tedious process of changing... ..document objects accessible to scripting languages such as JavaScript and VisualBasic Script (VBScript), which can be used to change the appearance, location, and even the **content** of those objects in real-time.

Microsoft's Internet Explorer 4.0 supports a WK "Working Draft" DOM specification that uses the CSS standard for... ..to use XML as the underlying language for new Web standards and applications. Microsoft uses XML for its Channel Definition Format, a Web-based "push" **content** delivery system included in Internet Explorer 4 Netscape will use XML in its Meta **Content** Framework to describe and store metadata, or collections

of information, in forthcoming

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versions of Communicator. XML is currently playing an important role in the realm... ..and objects with VRML, users need a VRML editor such as Silicon Graphics' Cosmo Worlds (<http://Hcosmo.sgi.com/products/studio/worlds>). To view VRML **content**, users need either a VRML browser or a VRML plug-in for standard HTML browsers.

Leading VRML plug-ins include Cosmo Player from Silicon Graphics...typically be downloaded for free from the Web.

VRML is capable of displaying static and animated objects and supports hyperlinks to multimedia formats such as **audio** clips, video files, and graphical images. As users maneuver through VRML worlds, the landscape shifts to match their movements and give the impression that they... ..in a Synchronized Multimedia Integration Language (SMIL), a new markup language being developed by the W3C. SMIL will allow Web authors to deliver television-like **content** over the Web using less bandwidth and a simple text editor, rather than intricate scripting.

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Director...multi-participant worlds. Provides support for ActiveX DimensionX Liquid Reality - VRML 2.0 platform written in Java, which provides both a viewer for viewing VRML **content** and a toolkit of Java classes for creating powerful 3D applications. It supports more than 250 classes for 3-D **content** creation.

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Locating documents and **content** within documents is a more complex problem and involves several alternative methods. The Windows file manager is a simplistic implementation of a hierarchical organization of...Storage 1414

Storage Services manage the document physical storage. Most document management products store documents as objects that include two basic data types: attributes and **content**. Document attributes are key fields used to identify the document, such as author name, created date, etc.

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#### Virtual Resources 1502

Virtual Resource services proxy or mimic the capabilities of specialized, network-connected ...workstation, translate it into an IP data stream, and route it through the Internet to a destination workstation, where the data is translated back into **audio**.

Desktop Voice Mail - Various products enable users to manage voice mail messages using a desktop computer.

#### Possible Product Options

Lucent PassageWay; COM2001s TransCOM; NetSpeaks WebPhone... ..and server utilities for spooling print jobs. Related programs include lpr (sends print job to spool) and lp (sends request to printer).

121

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122

#### Possible Product Options

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The following products...technology based on an event-driven publish/subscribe model for

141

information distribution. Developed and patented by TIIBCO, the event-driven, publish/subscribe strategy allows **content** to be distributed on an event basis as it

becomes available. Subscribers receive **content** according to topics of interest that are specified once by the subscriber, instead of repeated requests for updates. Using IP Multicast, TE3net does not clog... ..the most efficient real-time information delivery possible.

### Streaming 1536

Streaming is the process of transferring time-sensitive data streams (e.g., video and/or **audio**) in real-time. Streaming differs from the other types of Core Messaging services in that it delivers a continuous, one-way stream of data, rather... ..is one-way from the server to the client, the client can issue stream controls to the server.) Streaming may be used to deliver video, **audio**, and/or other real-time **content** across the Internet or within enterprise networks.

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Netscape Proxy Server - high-performance server software for replicating and filtering access to Web **content** on the Internet or an intranet. Provides **access** control, URL filtering, and virus scanning.

### filters

Check Point FireWall-I - combines Internet, intranet and remote user **access** control with strong authentication, encryption and network address translation (NAT) services.

The product is transparent to network users and supports multiple protocols.

BorderWare Firewall - protects...network protocols (e.g., Ethernet, Token Ring), switching simply directs packets according to a table of physical addresses. The switch can build the table by "**listening**" to network traffic and determining which network nodes are connected to which switch port.

Some protocols such as Frame Relay involve defining permanent routes

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token passing - A method of managing access to...ActiveX container. Therefore, any ActiveX control can be downloaded to, and plugged into the browser. This allows for executable components to be interleaved with HTML **content** and downloaded as needed by the Web browser.

213

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"surf" the Web by actively moving from one Web page to another, manually searching for **content** they want and "pulling" it back to the desktop via a graphical browser. But in the push model, on which subscription servers are based on, **content** providers can broadcast their information directly to individual users' desktops. The technology uses the Internet's strengths as a two-way conduit by allowing people to specify the type of **content** they want to receive.

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PointCast - news network that appears instantly on...complete an essay explaining why you should be promoted. This essay and your personnel file must be routed to numerous individuals who must review the **material** and approve your promotion. Workflow services coordinate the collection and routing of your essay and your personnel file.

engineering applications to automate the business value...grained business objects.

So what is the right size for a Business Component?

Business Components should encapsulate concepts that are significant to the business domain.

Of **course**, this is subjective, and it certainly varies by business domain. In fact, business domain experts, with help from component modelers, are in the best position...

**Dialog eLink:** Order File History  
7/K/73 (Item 35 from file: 349)  
DIALOG(R)File 349: PCT FULLTEXT  
(c) 2009 WIPO/Thomson. All rights reserved.

	Country	Number	Kind	Date
Patent				19

### Detailed Description:

...platform-independent Java applets." Java applets are small, specialized applications that comply with Sun's Java Application Programming Interface (API) allowing developers to add "interactive **content**" to Web documents (e.g., simple animations, page adornments, basic games, etc.). Applets execute within a Java-compatible browser (e.g., Netscape Navigator) by copying give developers and Web designers wherewithal to build dynamic **content** for the Internet and personal computers. ActiveX includes tools for developing animation, 3-D virtual reality, video and other multimedia **content**. The tools use Internet standards, work on multiple platforms, and are being supported by over 100 companies. The group's building blocks are called ActiveX...the application on the first server. Additionally, generation of a 1 5 plurality of the proxy components by a user may be allowed. The following **material** provides a more detailed description of the above-described method.

This portion of the present description details the ReTA SAP framework design from the perspective...separate from the context object of the activity component being utilized for controlling the scope of the execution of the error logging component. The following **material** provides a more detailed description of the above-described method.

This portion of the present description details the ReTA approach to performing "logical unit of...ability to share the transaction context).

MTS Features: Application Design Implications  
Description

Note: A FinancialWorks Knowledge Exchange (kX) posting (Optimizing Performance) provided most of the **content** for this portion of the description.

This portion of the description provides insight on the following MTS features.

Connection Pooling

Stateless/Stateful objects

Package threading...The interface may include a plurality of displays that are each displayed during the execution of a corresponding one of the sub-activities. The following **material** provides a more detailed description of the above-described method.

This portion of the present description details the ReTA Activity framework design from the perspective...unique default start page associated therewith. As another option, an operator role object and a customer role object may be made as well. The following **material** provides a more detailed description of the above-described method.

This portion of the present description details the ReTA Site Server framework design from the...may also include a time during which the event occurred. Further, the message may include a string altered based on a user profile. The following **material** provides a more detailed description of the above-described method.

This portion of the present description details the ReTA Event Handler framework design from...include a customer, a manager, and an employee. Additionally, the details of the users may include a user name and a legal name. The following **material** provides a more detailed description of the above-described method.

This portion of the present description details the ReTA User framework design from the perspective...may be a Visual Basic business object. In another aspect of the present invention, the business object may be a Java business object, The following **material** provides a more detailed description of the above-described method.

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This portion of the present description details the ReTA Persistence framework design from the...column names.

Return all the attributes to persist. The application developer invokes the -addPersistedAttribute method of the super class to add user id and last **update** timestamp attributes.

Return the pn-Mary key field:na- -me.

1%-C;LUJLII VCAA'or of all key attributes.

Return the array of all key...activity components, business components, a user component, a tracking manager component, a system preference component, and an event handler component may be employed. The following **material** provides a more detailed description of the above-described method.

This portion of the present description details the ReTA Session framework design from

the perspective...the user action involving one of the user interface objects may cause a predetermined event. Optionally, the page may be an HTML page. The following **material** provides a more detailed description of the above-described method.

1.5 This portion of the present description details the ReTA User Interface (UI) framework...implementation of the change request. The present invention may also optionally include the creation of a training schedule to fulfill the training requirements. The following **material** provides a more detailed description of the above-described method.

The ReTA Development Architecture Design includes a set of sub-components that represent all design...of database users and other database-related security issues

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ree Code Individual responsible for development and maintenance of source rarian code control tools, training **materials**, and storage areas. The Source Code Librarian is also responsible for the integrity of the source code environment. Additionally.

Establishes source code directories for new...anticipated. The large volumes of complex data generally require automation of backups and restores.

The advent of Netcentric technologies has introduced an increase in media **content** that requires storage. The environment may support a high volume of media files, which must be considered in the backup/restore plans. Storage capacity planning...The'se technology-independent tasks typically occur early (business modeling, solution strategy, and requirements gathering) and late (product testing through deployment) in the project.

ODM **content** should be used for all tasks that are related to component and object development.

In addition, ODM is the primary source for those tasks related... ..be considered on any project with high transaction volumes or complex distributed architectures involving several platforms.

In the case of Internet-based applications, as the **Internet** is not a controlled environment, performance modeling is limited to those components within the domain of the controlled environment (i.e. up to the Internet...type of environment therefore entails the generation of HTML pages, often with additional components (JavaScript, 3rd party ActiveX controls, Plugins) providing enhanced functionality or media **content**. Many tools are currently available for designing and creating web **content**, although HTML remains the common denominator, at the very least as a placeholder for the **content**.

In the case of systems published on the Internet, defining the target audience is less straightforward than in traditional systems, but equally important. Having a...all Internet related technologies. The very communication protocol used, TCP/IP, was designed with

few provisions to protect the security of the data packet.

Of **course**, security problems weren't created with the Internet; many of our standalone computer systems have the same types of security exposures. However, the global nature...Security Services enforce access control to ensure that records are only visible or editable by authorized people for approved purposes. Most database management systems provide **access** control at the database, table, or row level as well as concurrency control.

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ReTA implementation

ReTA implements Database Security Services through the Database Management...  
...allow users to view and interact with applications and portion of the present descriptions made up of varying data types, such as text, graphics, and **audio**. These services also provide support for navigation within and across portion of the present descriptions no matter where they are located, through the use of links embedded into the portion of the present description **content**. Web Browser Services retain the link connection, i.e., portion of the present description physical location, and mask the complexities of that connection from the...components in the Physical Model may support a portion of a function or more than one function from the functional model.

Physical Configuration

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The **content** for this portion of the description is defined in the Technology Infrastructure Procurement List portion of the present description.

Physical Model

Figure 47 illustrates the... ..as shown, for example, in Figure 51, Internet standards such as TCP/IP, HTML and CGI are used to publish, interact, and transact with data/**content** on the public Internet 5102. Typically, a firewall 5104 is implemented to 'der's internal resources 5106 from the public Internet. A service provider secure...Server.

Do not install Site Server on a Clustered NT System (MSCS). One can install Site Server onto a Windows Load Balancing Service (WLBS).

Remove **Content** Analyzer from Visual Studio.

Only install Site Server on a NTFS Drive.

1 5 Disable or Remove all Anti Virus software during entire install process...the META tag can contain catalog, author, or index information that various search engines can use.

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An example might be.

**CONTENT**="HTML portion of the present description reference  
Netscape'5

This portion of the present description is indexed under the terms "HTMU, "portion of  
the...

**Dialog eLink:** [Order File History](#)  
7/K/74 (Item 36 from file: 349)  
DIALOG(R)File 349: PCT FULLTEXT  
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	Country	Number	Kind	Date
Patent				19

#### **Detailed Description:**

...platform-independent Java applets." Java applets are small, specialized applications that comply with Sun's Java Application Programming Interface (API) allowing developers to add "interactive **content**" to Web documents (e.g., simple animations, page adornments, basic games, etc.). Applets execute within a Java-compatible browser (e.g., Netscape Navigator) by copying... ...Another technology that provides similar function to JAVA is provided by Microsofl and ActiveX Technologies, to give developers and Web designers wherewithal to build dynamic **content** for the Internet and personal computers. ActiveX includes tools for developing animation, 3-D virtual reality, video and other multimedia **content**. The tools use Internet standards, work on multiple platforms, and are being supported by over I 00 companies. The group's building blocks are called...the application on the first server. Additionally, generation of a 1 5 plurality of the proxy components by a user may be allowed. The following **material** provides a more detailed description of the above-described method.

This portion of the present description details the ReTA SAP framework design from the perspective...separate from the context object of the activity component being utilized for controlling the scope of the execution of the error logging component. The following **material** provides a more detailed description of the above-described method.

This portion of the present description details the ReTA approach to performing "logical unit of...ability to share the transaction context).

MTS Features: Application Design Implications  
Description

Note: A FinancialWorks Knowledge Exchange (kX) posting (Optimizing Performance) provided most of the **content** for this portion of the description.

This portion of the description provides insight on the following MTS features.

Connection Pooling

Stateless/Stateful objects

Package threading...The interface may include a plurality of displays that are each displayed during the execution of a corresponding one of the sub-activities. The following **material** provides a more detailed description of the above-described method.

This portion of the present description details the ReTA Activity framework design from the perspective...unique default start page associated therewith. As another option, an operator role object and a customer role object may be made as well. The following **material** provides a more detailed description ...may also include a time during which the event occurred. Further, the message may include a string altered based on a user profile. The following **material** provides a more detailed description of the above-described method.

This portion of the present description details the ReTA Event Handler framework design from the...include a customer, a manager, and an employee. Additionally, the details of the users may include a user name and a legal name. The following **material** provides a more detailed description of the above-described method.

This portion of the present description details the ReTA User framework design from the...may be a Visual Basic business object. In another aspect of the present invention, the business object may be a Java business object. The following **material** provides a more detailed description of the above-described method.

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This portion of the present description details the ReTA Persistence framework design from the et the last **update** timestamp value  
Return the last **update** timestamp value.

Adds the last **update** timestamp value and user id to the passed in persistable business object.

The application developer invokes this method from the setUserIdTiMeStampToObj method of a business... ..activity components, business components, a user component, a tracking manager component, a system preference component, and an event handler component may be employed. The following **material** provides a more detailed description of the above-described method.

This portion of the present description details the ReTA Session framework design from the perspective...the user action involving one of the user interface objects may cause a

predetermined event. Optionally, the page may be an HTML page. The following **material** provides a more detailed description of the above-described method.

1 5 This portion of the present description details the ReTA User Interface (UI) framework...implementation of the change request. The present invention may also optionally include the creation of a training schedule to fulfill the training requirements. The following **material** provides a more detailed description of the above-described method.

The ReTA Development Architecture Design includes a set of sub-components that represent all design...of database users and other database-related security issues

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Source Code Individual responsible for development and maintenance of source Librarian code control tools, training **materials**, and storage areas. The Source Code Librarian is also responsible for the integrity of the source code environment. Additionally,

Establishes source code directories for new...anticipated. The large volumes of complex data generally require automation of backups and restores.

The advent of Netcentric technologies has introduced an increase in media **content** that requires storage. The environment may support a high volume of media files, which must be considered in the backup/restore plans. Storage capacity planning...ODM. These technology-independent tasks typically occur early (business modeling, solution strategy, and requirements gathering) and late (product testing through deployment) in the project.

ODM **content** should be used for all tasks that are related to component and object development.

In addition, ODM is the primary source for those tasks related... ..dedicated performance modeling tools should be considered on any project with high transaction volumes or complex distributed architectures involving several platforms.

In the case of **Internet**-based applications, as the Internet is not a controlled environment, performance modeling is limited to those components within the domain of the controlled environment (i...type of environment therefore entails the generation of HTML pages, often with additional components (JavaScript, 3rd party ActiveX controls, Plugins) providing enhanced functionality or media **content**. Many tools are currently available for designing and creating web **content**, although HTML remains the common denominator, at the very least as a placeholder for the **content**.

In the case of systems published on the Internet, defining the target audience is less straightforward than in traditional systems, but equally important. Having a...all Internet related technologies. The very communication protocol used, TCP/IP, was designed with few provisions to protect the security of the data packet.

Of **course**, security problems weren't created with the Internet; many of our standalone computer systems have the same types of security exposures. However, the global nature...of router called a screening router.

Proxy Services are specialized applications or server programs that run on a firewall host, which take users' requests for **Internet** services (such as ftp and telnet) and forward them, as appropriate according to the site's security policy, to the actual services. The proxies provide...that record faster.

ReTA implementation

ReTA implements Database Indexing Services through the Database Management System (either Oracle or SQL Server).

Security

Description

Security Services enforce **access** control to ensure that records are only visible or editable by authorized people for approved purposes. Most database management systems provide access control at the... ..allow users to view and interact with applications and portion of the present descriptions made up of varying data types, such as text, graphics, and **audio**. These services also provide support for navigation within and across portion of the present descriptions no matter where they are located, through the use of links embedded into the portion of the present description **content**. Web Browser Services retain the link connection, i.e., portion of the' present description physical location, and mask the complexities of that connection from the...components in the Physical Model may support a portion of a function or more than one function from the functional model.

Physical Configuration

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The **content** for this portion of the description is defined in the Technology Infrastructure Procurement List portion of the present description.

Physical Model

Figure 47 illustrates the...as shown, for example, in Figure 51, Internet standards such as TCP/IP, HTML and CGI are used to publish, interact, and transact with data/**content** on the public Internet 5102. Typically, a firewall 5104 is implemented to secure a service provider's internal resources 5106 from the public Internet. A...Server.

Do not install Site Server on a Clustered NT System (MSCS). One can install Site Server onto a Windows Load Balancing Service (WLBS).

Remove **Content** Analyzer from Visual Studio.

Only install Site Server on a NTFS Drive. 1 5 Disable or Remove all Anti Virus software during entire install process...the META tag can contain catalog, author, or index information that various search engines can use.

An example might be.

**CONTENT**="HTML portion of the present description reference  
Netscape">

This portion of the present description is indexed under the terms "HTML", "portion of the present...

**Dialog eLink:** Order File History  
7/K/75 (Item 37 from file: 349)  
DIALOG(R)File 349: PCT FULLTEXT  
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	Country	Number	Kind	Date
Patent				19

### English Abstract:

The multimedia training system of the present invention employs a plurality of user interfaces to present class **material** to the users in a balanced linearly progressive manner. The multimedia training system enables users to learn, review and reinforce the class **material** at their own pace. The multimedia training system also maintains the current class **material** and facilitates pre-class and post-class assessments of the user's knowledge to determine the user's knowledge. In one embodiment (Fig. 1), a CD-ROM (12) or other local storage device containing the program and **content** of the class **material** are provided to the user. In another embodiment (Fig. 26), the program and **content** of the class **material** are stored on a system storage device (1026) that the user communicates with over the Internet (1600).

### Detailed Description:

...in particular to a multimedia training which presents classes to the user in a balanced linear understandable format, enables the user to learn the class **material** at the user's own pace and provides appropriate feedback regarding the user's understanding of the class **material**.

### BACKGROUND OF THE INVENTION

Training employees is one of the most difficult problems facing businesses today.

Businesses present, or often turn to outside sources to present, classes or programs for their employees to learn information and **materials** necessary for their employees to properly perform their jobs. These classes or programs vary in the duration of the class, the methods of teaching or presenting the **material** and the volume of information and **material** provided to the employees. Some employees learn, understand and retain the information and **materials** provided in these classes or programs and some do not. Some of the classes or programs have methods for assessing the employees knowledge base before and after the programs or classes and some do not.

Businesses, or outside sources, also provide employees with written training **materials** separate from or in conjunction with these programs and classes. The

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volume and usefulness of these training **materials** varies. If the **materials** are not suited to the employee's abilities, the employee may not be inclined to carefully review the **materials**. Some written training **materials** have methods for assessing the employee's knowledge before and after the employee reviews or uses the training **materials** and some do not.

Some of these programs do not provide sufficient feedback for the businesses, some do not produce better trained employees, some do... ..also have difficulty deciding which training programs best suit the needs of their employees.

Some businesses therefore spend substantial investments on training programs, classes and **materials** which are of limited use to their employees. Moreover, some businesses do not have the appropriate facilities, staff, time or budgets to send employees to appropriate training classes or to provide employees with appropriate training **materials**.

Computerized training programs have been developed. Some of the commercially available computerized training programs are complicated, difficult to use and require the employee to first learn how to use the software before the employee can focus on the information or **material** presented by the program.

Additionally, some of these computerized training programs are difficult to maintain current or lack automatic update features.

Accordingly, there is a need for a cost-effective and efficient training system which presents the information and class **material** to be learned in a balanced linear understandable format, immediately focuses the user on the information and

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**material** to be learned, produces better trained employees, allows the user to learn at the user's own pace, maintains the **material** current, and provides sufficient feedback for the employers or businesses including pre-program assessments and post-program assessments.

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DISCLOSURE OF THE INVENTION

The... ..abbreviations or any other abbreviated term used herein to describe the present invention.

The system includes a plurality of user interfaces to present the class **material** to the user with video, **audio**, graphical and textual presentations in an understandable manner using the techniques of balanced perception and linear 1 5 progression. The system enhances the user's ability to relate to the **material** and focus on the educational **content**. The system includes a base or pre-class assessment and a post-class or final assessment which enables the user, as well as the user... ..amount of information learned by the user while using the training system. The training system also enables the user to focus immediately on the training **material** instead of the software of the system. The disciplined training approach provided . by the system of the present invention provides a reinforced learning environment and...training class.

Yet a further object of the present invention is to provide a multimedia 1 5 training system that enables a user to access **training** classes over the **internet**.

Other objects, features and advantages of the invention will be apparent from the following detailed disclosure, taken in conjunction with the accompanying sheets of drawings system of the present invention;

Fig. 15 is a schematic flowchart of the **content** navigator function of the first embodiment of the multimedia training system of the present invention;

Fig. 16 is a schematic flowchart of the objectives function...and previous features of the second embodiment of the multimedia training system of the present invention;

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Fig. 38 is a schematic flowchart of the **content** navigator function of the second embodiment of the multimedia training system of the present invention; Fig. 39 is a schematic flowchart of the objectives function... ..the present invention, generally indicated by numeral 10, is adapted to train a plurality of users. The system 10 includes a plurality of program and **content** storage devices 12 which are provided to the users. In the first embodiment, the program and **content** storage devices 12 are preferably CDROMs, although it should be appreciated that the system 10 could provide the appropriate program and **content** to the users through other suitable storage devices or through conventional electronic communications such as e-mail or the Internet. It should be appreciated that...and (iii) may be in the same business or different businesses.

The multimedia training system classes, referred to herein as classes or alternatively as training **material**, are preferably divided into multiple modules. The modules are preferably divided into multiple activities. The activities are preferably 1 1

divided into multiple tasks. The enables the employer or teacher to view class results, to maintain **course** curriculum and to conduct appropriate user maintenance, such as user registration. The system 1 5 server 24 communicates with monitor processors 28 which are operated... ..classes provided on the storage devices 12. In one preferred

embodiment, the system is adapted to provide feedback regarding the users' understanding of the training **material**.

The system 10 stores certain information on the user database 16 including the: (i) user's username and contact information; (ii) user's password (iii... ..10 checks the local or user database 16 to determine if there is any updated information relating to the retrieved information. This enables the class **material** to remain current.

The employees or monitors of the user may use the monitor processors 28 to check the status of the users in taking...user's screen. This enables the user to access the system functions which are illustrated in Fig. 3A. Specifically, the website interface 68 includes a **content** navigator button 161, a status button 165, a notes button 167, a chat button 169, a discussion button 171, a next button 173, a previous...which determines the user's pre-class knowledge. The classes also include quizzes throughout the class (i.e., while the user is accessing the training **material**) which test the user's progress and which reinforce the **material** learned by the user. Each class further includes a final exam which the user must take to complete the class (i.e., **after** the user has **accessed** the training **material**).

The system 10 presents the quiz interface 70, as illustrated in Fig. 4, to the user. The quiz interface 70 includes a top left box... ..displaying still images or photographs to the user, a top right box or display area 104 for displaying text including questions related to the training **material** to the user and a bottom horizontally extending lower box or display area 106 for displaying the list of possible answers to the question to the user. The quiz interface 70 also includes a **content** navigator button 161, a status button 165, a notes button 167, a chat button 169, a discussion button 171, a next button 173, a previous...the grades to the system server 24.

In the quiz interface 70, the user may also: (i) exit 160 the system 10; (ii) use the **content** navigator to review 162 other quiz questions in the same quiz; (iii) determine 166 the status of the quiz; (iv) go to the previous task...left-handed users.

The process interface 72 thereby maximizes the user's retention of the information in the class.

The process interface 72 includes a **content** navigator button 161, a status 1 5 button 165, a notes button 167, a chat button 169, a discussion button 171, a next button 173...to stop the movie.

When in the process interface 72, the system 10 enables the user to: (i) exit 160 the system; (ii) use the **content** navigator to review 162 the **content**; (iii) review 164 the objectives of the class (if this feature is present in the system 10); (iv) determine 166 the status of the class up definitions; and (xii) use 182 the resources to obtain the location of supplemental **material**. If the play button is hit 238, system 10 lights 240 the stop button and begins 216 to play the movie. The process interface 72... ..presents one or more textual statements or definitions to the user referencing the movie, digital video or graphical animation.

The conceptual interface 74 includes a **content** navigator button 161 , a status button 165, a notes button 167, a chat button 169, a discussion button 171 , a next button 173, a previous...264 for user interaction.

In the conceptual interface 74, the system 10 enables the user to: (i) exit 160 the system; (ii) use the **content** navigator to review the **content** of the class; (iii) review 164 the objectives of the class (if the feature is made available by the system 10); (iv) determine 166 the... ..0, includes a central display box or area 301 enabling the user to perform and complete the exercise. The exercise interface 76 also includes, a **content** navigator button 161, a status button 165, a notes button 167, a chat button 169, a discussion button 171, a next button 173, a previous...screen, the system 10 begins the exercise interface function, as described below.

The system 10 pulls or retrieves 310 the locations of the interactive **content** for the exercise from the class database. The system 10 executes 312 the exercise and waits for notification that the exercise has been successfully... ..for further user interaction.

In the exercise interface 76, the system 10 enables the user to: (i) exit 160 the system; (ii) use 162 the **content** navigator to review the **content**; (iii) review 164 the objectives of the class (if the feature is made available by the system 10); (iv) determine 166 the status of the... ..or movies associated with the class to the user. The shockwave interface 80, as illustrated in Fig. 13A includes a central display area 330, a **content** navigator button 161 , a status button 165, a notes button 167, a chat button 169, a 5 discussion button 171, a next button 173, a...that the current task is not the first task). When the user selects the next or previous buttons, the system 10 determines 345 if the **content** navigator is open. If the **content** navigator is open, the system checks 346 off the task as complete in the **content** navigator. Thereafter, or if the **content** navigator is not open, the system 10 determines 347 if the status window is open. If the status window is open, the system 10 recalculates...visit interface 68, quiz interface 70, process interface 72, conceptual interface 74, exercise interface 76, launch external program interface 78 and shockwave interface 80.

## 5 Content Navigator Function

Referring now to Fig. 15, the **content** navigator function of the system 10 of the present invention enables the user to see, review and select (i.e., linearly review and select) the **content** of the class, and in particular, the modules, activities and tasks in the class. When the user selects the **content** navigator button, the system 10 determines 357 if the **content** navigator window is open. If the **content** navigator window is open, the system 10 closes 358 the **content** navigator window and returns 359 to the last activated user interface. If the **content** navigator window is not open, the system 10 opens 360 the **content** navigator window, retrieves 361 the

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class curriculum from the class database on the storage device 12, displays 362 the modules, activities and tasks in... ..76, the launch external program interface 78 and the

shockwave interface 80. If the user exits 380 the system, the system 10 closes 382 the **content** navigator window and returns 359 to the last activated user interface.

### Objectives Function

Referring now to Fig. 16, the system 10 may include an objectives...Referring now to Fig. 22, the print function of the system 10 of the present invention enables the user to print the desired information or **material** from the class. The print function is preferably only accessible from the process interface 72, although it could be accessible from the other interfaces. When...transmits a shockwave URL with each application or interface to the user

browser 1606. The user browser 1606 downloads a shockwave file (i.e., a **tutorial** DCR file 1608 as shown in Fig. 25) containing the graphic files, displayed text, animation instructions and-timing synchronization data as discussed in further detail... ..sends a list of classes to the users, determines what task the user stopped on, etc.). The storage device 1026 provides the appropriate program and **content** to at least one, but preferably more, user(s) over the internet 1600 as provided previously for the first embodiment.

Fig. 25 illustrates a high... ..enables the user to: (i) to move to a "next" or "previous" task 1174 and 1176; (ii) open a new browser window displaying a HTML **content** navigator tree 1162; (iii) open a new browser window displaying an online chat application 1176 for the currently enrolled users; (iv) open a new browser...the system 1010 includes user processors 1014 and associated user monitors or displays 1018 and input devices 1020 like system 10.

However, as the multimedia **training** program is provided over the **internet** 1600, the user processor 1012 generally does not utilize a local database. It is only necessary that the user processor 1012 operably communicate with the... ..conceptual interface 1074, or the exercise interface 1076). The student browser application 1606 receives the appropriate interface from the system server 1024 and displays the **content** of the appropriate interface using a shockwave URL, where the shockwave URL instructs the user browser 1606 to download the shockwave file containing the graphic...on the task type, from a task component table on the storage device 1026. For example, multiple choice questions have different task components than multimedia **tutorials**. If a task component does not exist for a particular task, a "O" is sent back to the browser 1606 indicating that the task component...as described for the exercise interface 76 above. Referring now to Fig. 36, the system 1010 pulls or retrieves 1310 the locations of the interactive **content** for the exercise from the class database on storage device 1026 and transmits this information with a shockwave URL over the internet 1600 to the...on the system database 1026 (or a website on the internet 1600 if applicable) to download a shockwave file. The shockwave file (i.e., a **tutorial** DCR file 1608 as shown in Fig. 25) contains the graphic files, displayed text, animation instructions and timing synchronization data generally necessary to display an... ..task) similar to the next and previous functions of the system 10. However, system 1010 differs from system 10 in that it determines if the **content** navigator 1345, the status window

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, and the objective windows 1349 are open by checking the system storage

device 1026 using the internet 1600. The system transmits a shockwave URL to the browser application 1606 (not shown in Figs. 37A and 37B) and displays the **content** of those windows-on the display 1018. If the **content** navigator is open, the system checks 1346 if the task is complete in the **content** navigator. If the status window is open, the system 1010 recalculates 1348 the percent complete for all status bars. Thereafter, or if the status window... ..on storage device 5 1026. If the previous task button is hit, the system 1010 obtains 1354 the last completed task from the local database.

#### **Content Navigator Function**

Referring now to Fig. 38, the **content** navigator function of the system 1010 of the present invention enables the user to see, review and select the **content** of the class, and in particular, the modules, activities and tasks in the class like the **content** navigator of system 10. However, system 1010 differs from system 10 in that it determines if the **content** navigator is open by checking the system storage device

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using the internet 1600. The system transmits a shockwave URL to the user browser 1606 (not shown in Fig. 38) and displays or opens this window on the display 1018. When the user selects the **content** navigator button, the system 1010 determines 1357 if the **content** navigator window is open. If the **content** navigator window is open, the system 1010 closes 1358 the **content** navigator window and returns 1359 to the last activated user interface. If the **content** navigator window is not open, the system 1010 opens 1360 the **content** navigator window, retrieves 1361 the class curriculum from the class database on the storage device 1026, displays 1362 the modules, activities and tasks in an...

#### **Claims:**

The invention is hereby claimed as follows:

1 . A computerized training system for individually training a user by enabling said user to access training **material** in a linear format and enabling said user to learn said training **material** at said user's own pace, the computerized training system comprising: a storage device including at least one class database containing said 10 training **material**; a user processor adapted to interact with the storage device to access said training **material** and further adapted to enable said user to linearly use said training **material**; a user database associated with the user processor and adapted to store information regarding said user's progress in learning said training **material**; an user input device associated with the user processor; a system server communicating with the user processor and adapted to provide information regarding said user's progress in learning said training **material**; a system database associated with the system server and adapted to store information regarding said user's progress in learning said training **material**; and a monitor processor communicating with the system server and adapted to enable a monitor to obtain feedback regarding and determine said user's progress in learning said training **material**. 55. The computerized training system of Claim 1, wherein the user processor includes a **content** navigator adapted to enable said user to linearly review and select **content** in said training **material**.

3 The computerized training system of Claim 2, wherein the user

processor includes a conceptual interface adapted to enable said user to learn concepts associated with said training **material**.

4 The computerized training system of Claim 2, wherein the user

1 0 processor includes a process interface adapted to enable said user to learn a process associated with said training **material**.

5 The computerized training system of Claim 2, wherein the user

processor includes an exercise interface adapted to enable said user to perform 1 5 exercises associated with said training **material**.

6 The computerized training system of Claim 2, wherein the user

processor includes a quiz interface adapted to enable said system to determine said user's knowledge regarding said training **material**.

7 The computerized training system of Claim 6, wherein the user

processor is adapted to enable said system to provide feedback regarding said user's understanding of said training **material**.56. The computerized training system of Claim 2, wherein the userprocessor includes a website interface adapted to enable said user to view **updates** related to said training **material**.

9 The computerized training system of Claim 2, wherein the user

processor includes a launch external program interface adapted to enable said user to run... ..2, wherein the userprocessor includes a shockwave interface adapted to enable said user to view streamed video, graphics or movies associated with said training **material**.

11 The computerized training system of Claim 2, wherein the user

processor includes a notes function adapted to enable said user to create and save 5 notes relating to said training **material**.

12 The computerized training system of Claim 1 1, wherein the user

processor includes an index function adapted to enable said user to obtain a definition for a term used in said training **material**.

13 The computerized training system of Claim 12, wherein the user

processor includes next and previous functions adapted to enable said user to linearly access a next or previous task of said training **material**.57. The computerized training system of Claim 12, wherein the userprocessor includes an objectives function adapted to enable said user to determine objectives of said training **material**.

15 The computerized training system of Claim 14, wherein the user

processor includes a status function adapted to enable said user to determine said user's progress in learning said training **material**.

16 The computerized training system of Claim 15, wherein the user

1 0 processor includes a chat function adapted to enable said user to chat about said learning **material** with at least one other user or monitor on a real time basis.

17 The computerized training system of Claim 16, wherein the user

processor further includes a discussion function adapted to enable said user to 1 5 discuss said learning **material** with at least one other user or monitor.

18 The computerized training system of Claim 17, wherein the user

processor includes a resource function adapted to enable said user to obtain other information associated with said training **material**.

19 The computerized training system of Claim 2, wherein said linear

format includes modules, activities and tasks.58. The computerized training system of

Claim 1... database associated with each user processor. 1 5 24. A computerized training system for individually training a user by enabling said user to access training **material** in a linear format through a data network and enabling said user to learn said training **material** at said user's own pace, the computerized training system comprising; a system server adapted to provide said training **material** and information regarding said user's progress in learning said training **material** through said data network; a system database associated with the system server adapted to at least store said training **material** and information regarding said user's progress; 59 a user processor adapted to interact with the system server enabling said user to linearly access said training **material** through said data network; an user input device associated with the user processor; and a monitor processor communicating with the system server and adapted to enable a monitor to determine said user's progress in learning said training **material**, whereby said computerized training system enables said user to learn at said user's own pace and provide feedback to the monitor regarding said user's understanding of said training **material** through said data network. 1 0 25. The computerized training system of Claim 24, wherein the system server includes a **content** navigator adapted to enable said user to linearly see, review and select **content** of said training **material**.

26 The computerized training system of Claim 25, wherein the system 1 5 server includes a conceptual interface adapted to enable said user to learn concepts associated with said training **material**.

27 The computerized training system of Claim 25, wherein the system server includes an exercise interface adapted to enable said user to perform exercises associated with said training **material**.

28 The computerized training system of Claim 25, wherein the user processor includes a process interface adapted to enable said user to learn a process using step-by-step instructions associated with said training **material** and provided by said system. 60. The computerized training system of Claim 25, wherein the system server includes a quiz interface adapted to enable said system to determine said user's knowledge regarding said training **material**.

30 The computerized training system of Claim 25, wherein the system server includes a website interface adapted to enable said user to view **updates** related to said training **material**.

31 The computerized training system of Claim 25, wherein the system processor includes a notes function adapted to enable said user to create and save notes relating to said training **material**.

32 The computerized training system of Claim 31, wherein the system server includes an index function adapted to enable said user to obtain a definition for a term used in said training **material**.

33 The computerized training system of Claim 32, wherein the system server is adapted to enable said system to provide feedback regarding said user's understanding of said training **material**.

34 The computerized training system of Claim 32, wherein the system server includes next and previous functions adapted to enable said user to linearly access a next or previous task of said training **material**. 61. The computerized training system of Claim 34, wherein the system server includes an objectives function adapted to enable said user to determine objectives of said training **material**.

36 The computerized training system of Claim 35, wherein the system server includes a status function adapted to enable said user to determine said user's progress in learning said training **material**.

37 The computerized training system of Claim 36, wherein the system server includes a chat function adapted to enable said user to chat about said learning **material** with at least one other user or monitor on a real time basis.

38 The computerized training system of Claim 37, wherein the system server further includes a discussion function adapted to enable said user to discuss said learning **material** with at least one ...system of Claim 38, wherein the system server includes a resource function adapted to enable said user to obtain other information associated with said training **material**.

40 The computerized training system of Claim 25, wherein said user accesses streamed video, graphics, text, animation instructions and timing synchronization data provided by the... 15 interface includes a first area adapted for displaying still images, a second area adapted for displaying text including questions related to the training **material** and a third area adapted for displaying answers to the questions.

45 The computerized training system of Claim 29, wherein the process interface includes a... adapted for displaying video images, a second area adapted for displaying still images and a third area adapted for displaying text related to the training **material**.63. The computerized training system of Claim 26, wherein the conceptual interface includes a first area adapted for displaying movies, video or graphic animation and a second area adapted for displaying text related to the training **material**.

47 The computerized training system of Claim 24, further including a plurality of user processors communicating with the system server.

48 A computerized training system for individually training a user by enabling said user to access training **material** in a linear format and enabling said user to learn said training **material** at said user's own pace, the computerized training system comprising: means for enabling said user to linearly access said training **material** and learn said training **material** at said user's own pace; 15 means for storing at least said training **material** and information regarding said user's progress in learning said training **material**; and means for monitoring said user's progress in learning said training **material**.

49 The computerized training system of Claim 48, wherein the linear access means includes means for linearly reviewing and selecting a **content** of said training **material**.64. The computerized training system of Claim 48, wherein the linear access means includes means for enabling said user to learn concepts associated with said training **material**.

51 The computerized training system of Claim 48, wherein the linear access means includes means for determining said user's knowledge regarding said training **material**.

52 The computerized training system of Claim 48, wherein the linear access means includes means for enabling said user to learn a process using stepby- step instructions associated with said training **material**.

53 The computerized training system of Claim 48, wherein the linear access means includes means for enabling said user to create and save notes 5 relating to

said training **material**.

54 The computerized training system of Claim 48, wherein the linear access means includes means for accessing streamed video, graphics, text, animation instructions and timing synchronization data.

55 A computerized training system for individually training a user by enabling said user to access training **material** in a linear format and enabling said user to learn said training **material** at said user's own pace, the computerized training system comprising: means providing at least said training **material** to said user in a linear format; means for providing an interface used with said training **material**; and means for enabling said user to review and select **content** of said training **materials**.

56 The computerized training system of Claim 55, which further includes means for determining said user's knowledge of said training **material** and providing said training **material** based on said user's knowledge.

57 The computerized training system of Claim 55, wherein the interface providing mean includes enabling said user to access a **content** navigator interface adopted to enable said user to review and select said training **material**.

58 The computerized training system of Claim 55, wherein the interface providing means includes enabling said user to access at least a conceptual... function, a status function, a chat function, a discussion function and a resource function.

60 The computerized training system of Claim 55, wherein the training **material** providing means provides said training **material** in a linear format including modules, multiple activities and multiple tasks.

61 A training method for individually training a user by enabling said user to access training **material** and enabling said user to learn said training **material** at said user's own pace, the training method comprising: determining said users' pre-class knowledge; providing said training **material** to the user; and enabling said users to use a **content** navigator to review and select said training **material** in a linear format.

62 The training method of Claim 61, further including enabling said user to learn concept associated with said training **material**.

63 The training method of Claim 62, further including enabling said user to perform exercises associated with said training **material**.

64 A computerized training method for individually training a user by enabling said user to access training **material** in a linear format and enabling said user to learn said training **material** at said user's own pace, the computerized training method comprising: enabling said user to access a training website; determining which interface is appropriate for a training class; and enabling said user to review and select said training **material**.

65 The training method of Claim 64, further including enabling said user to learn a process using step-by-step instructions associated said training **material**.

66. The training method of Claim 65, further including enabling said user to view changing data relevant to said training **material**.

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### Detailed Description:

...and interact in many ways with other persons.

In recent years, schools such as high schools, colleges, trade schools and the like have begun offering **courses**, which are accessible on-line by students operating Internet - capable computers. In some cases one may work toward a degree in almost any field without ever entering a classroom. With the appropriate software program installed on a computer, an individual may have access, generally by password, to server-based **material** offered by a learning institution including review **material**, quizzes, tests and so on.

In practice, one must log in to a designated server to gain **access** to required study **material**. **After** study **material** is provided an interactive test is typically offered.

Such a server records interaction by students so that teachers and administrators may review, grade, and otherwise... ..service, are somewhat limited in scope and application. One problem is that a student must physically log-in to the service and interact with prepared **material**.

This requires that the student remember a password and, in some cases, coded names for his correct **course material**. Often, the **material** has pre-set instructions that the student must follow before properly interacting with the offered **material**. If the instructions are not clear, or if they are followed incorrectly, a student may become frustrated, or have to start over after many interactions. If a student has questions, typically only e-mail is available for contacting the teacher or administrator of the **course**.

Another problem with the kinds of on-line education offered in the prior art is that teachers must research and prepare the **material** according to software conventions, which requires knowledge of computer languages. A teacher that cannot prepare the lessons according to required software convention must have a technician prepare the **material** and make it accessible. There are many complex routines to deal with for both teachers and students.

As described above, the Internet provides access to... ..present invention, described in enabling detail below, would use the existing technology of Internet server/client communication, which includes multi-WEB casting capability, and abundant **educational** information already posted on the **Internet**, making it possible to obtain and prepare **material**, using editing tools, and package it to be sent to students having

computers with Internet access.

#### Summary of the Invention

In a preferred embodiment of... storage and eventual provision of the lecture to the lecture client stations according to the predetermined schedule. Enhancement may include one or more of masking **content**, text annotation, attaching **audio** or video files, or adding graphic elements to the selected page.

In some embodiments the lecture-authoring software further enables the teacher-author to author...to manage lectures having any number of simultaneous participants, using information from Internet-connected servers (VVEB pages), and allowing participants to interact with the lecture **material**, or with a lecturer in a real time situation.

#### Brief Description of the Drawings

Fig. 1 is a block diagram illustrating an Internet-based... pre-packaged lectures and so on.

Two illustrated servers 29 and 27, shown connected to backbone 23 represent thirdparty Internet WEB servers serving VVEB-based **content** such as hyper-text-markuplanguage (HTML) pages to any Internet-connected user operating a browser application to enable Internet navigation as is known in the... There are many other variations that are possible.

A lecture service provider (educator) 17 is illustrated also as connected to ISP 20, but may of **course** connect by any possible suitable apparatus and protocol. There will typically be many more lecturers such as lecturer 17 participating in the practice of the...lecture, and transfers browser control to instance 31 in server 19 when a lecture is executing. Other features of instance 33 allow dissemination of varied **content** that may be inserted and presented in an Internet-based lecture.

In practice of the present invention, lecturer 17 connects to Internet 11 through... he or she wishes to base a lecture. A mark-up tool kit included in software 35 allows lecturer 17 to annotate and insert added **content** into a cached copy of any WEB page, as well as to block out undesirable **content**.

**After accessing**, caching, and annotating a plurality of WEB pages as a **lecture**,

then

the annotated copies are bundled together according to lecturer preference and set to a time schedule for execution. In this bundling process the lecturer may also interweave self-composed pages, **audio** notes, and the like. A completed bundle may then be uploaded over the Internet to server 19 where it is received and stored.

Software 31... for educational purpose.

In some cases,

The unique method of allowing lecturer's the use of public, and i commercial VVEB pages as basic **content** for the learning **material** reduces much work normally incurred through the reading and preparing of **material** from text books and other physical resources. Since virtually any informative data may be obtained on the Internet, lecturer's using appropriate search tools may...is provided and allows the lecturer to choose from a wide variety of subjects associated with any chosen category to further narrow a search for **material**. For example, if a broad category is History, then an associated subject might be Native American. Additional parameters may be entered to further narrow the... ..to do with the History of Native Americans of the East Coast. Still additional parameters may be entered to further narrow a search for lecture **material**.

In one embodiment, search engine known such as Altavista™ or Excite™ which are popular search engines, may be used. The inventor simply notes that a... ..search engine may be provided that is tailored to returning results that are educational in nature, and therefore more likely to be usable for lecture **material**. In some cases, a special on-line database may be created to contain links to known on-line educational references such as libraries or other...pages are renumbered as necessary to amend the serial order desired for presentation.

A button labeled Stored allows a lecturer to browse through any stored **material** created and saved, or simply saved that may be re-used. Such storage may be an on-line storage dedicated for the purpose. In one... ..a certain amount of on-line storage may be made available to lecturers participating in the service as part of the service. In another embodiment, **material** may simply be stored at the location of the lecturer such as on a non-volatile storage device connected to his or her PC.

A... ..to apply a time schedule to a completed lecture. A button labeled Retrieve is provided and adapted to allow a lecturer to retrieve any stored **material** including a completed lecture that may be stored in server 19. An instance wherein a lecturer may retrieve a stored lecture may be to add new **material** before the time deadline, or to generally **update a lecture**. In another instance, a lecturer may change his mind about scheduling or recipient parameters, and may retrieve a lecture in order to alter those parameters... ..but simply re-streamed via instruction in the bundle.

A button labeled Link is provided and adapted to allow a lecturer to provide links to **audio**, video, other pages not included in the bundle, and so on. A button labeled Review allows a lecturer to review edited portions of a lecture including playing any **audio** or multi-media associated with the lecture in order to test it's presentation and effectiveness.

It will be apparent to one with skill in...5 1, an animated GIF in the form of a pointer arrow is shown pointing to a certain section of the pie chart while an **audio** player 55 is describing the pie chart. The player interface may be hidden rather than displayed as shown. Such multimedia **content** may be associated to - 16 a lecture and streamed in time of presentation of a specific lecture page pertaining to the multimedia.

There are a Such data might include payment to a lecturer for a commercial lecture

received payment for on-line books or other reference **material**, comments, or the like.

A button labeled Pause is provided and adapted to allow a lecture recipient to pause a lecture in progress in order... 19 remains open such that hitting pause again resumes download of the lecture at the point where it was paused.

9

This option is, of **course** not available with the real-time version.

In a preferred embodiment, enhancements to browser window 47 effected by software plug-in 33 of Fig. 1... spirit and scope of the present invention. For example, a large learning institution such as a college may reserve a single server for presenting their **material**. Teachers and students belonging to the institution will all subscribe to the same server. In another embodiment, one server may be used for a variety... In some cases lecturers may, instead of using public domain VVTB pages, create their own on-line lecture pages as may be required depending on **content**. In other instances, a combination of public domain pages and created pages may be used. For example, a politician giving a speech may provide many...

#### Claims:

...lecture to the lecture client stations according to the predetermined schedule.

3 The system of claim 2 wherein enhancement comprises one or more of masking **content**, text annotation, attaching **audio** or video files, or adding graphic elements to the selected page.

4 The system of claim 2 wherein the lecture-authoring software further enables the... connected client workstations. 11. The method of claim 10 wherein, in step (a) altering copies of VVEB pages comprises one or more of masking **content**, text annotation, attaching **audio** or video

files, or adding graphic elements to the selected page.

12 The method of claim 10 wherein, in step (a), the teacher-author...

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DIALOG(R)File 349: PCT FULLTEXT

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### Detailed Description:

...complete control over the instructional medium as a function of his or her specific choices via interactive commands. Moreover, the student can learn from multiple **audio** streams or files originating from one or more Internet sites. Any one of a choice of downloaded **audio** streams or files may be selected using interactive 15 commands issued by the student.

Further, interactive instructors and publishers can access a server and upload **audio** as well as other multimedia files, such as video clips along with suggested lessons, exercises, and activities. The instructor or publisher can sequence the **audio** clips using suitable authoring tools in combination with the system functions to create an interactive communication skills learning program tailored to his or her students... ..process of acquiring foreign language and communication skills can be interactive and more individualized and thus, more enjoyable than other traditional ways of learning such **material**.

Further, the invention provides graphical displays that enhance acquisition of **material** by providing an additional channel of informational input. Added sensory stimulation provided by the visual representation of their oral performance can facilitate learning for students whose learning styles rely on visual more than aural modes.

Finally, book and other **content** publishers also benefit, as **updates** and revisions may be published on the web to reduce the need to print new editions, and these may be made interactive using the system. Moreover, **web-based** communication skills **training** can incorporate written **materials** such as textbooks and extends these **materials** with multimedia supplements to avoid obsolescence due to the ubiquity of the web as a publishing medium.

For performance arts learning, the invention makes instruction... ..or other neurological problems for whom special transportation may require added expense and hardship, to gain access to the diagnosis and treatment they need.

Additionally, **content** providers may splice **audio**-visual advertisements into their **content** as it is delivered. By virtue of the demographic information that may be available to the **content** providers via the system, it may be possible to target specific student/users with specific commercials. This targeting, which is an extension of the controlled access to **content** described later in the document, may allow **content** to be delivered on a geographic basis and blackouts to be established based on business requirements.

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### BRIEF DESCRIPTION OF THE FIGURES

Fig. 1 is... ..as the Internet.

Also connected to the network 110 are one or more servers 116 and 118 which provide **materials** such as files relating to training, exercises or activities suitable for

downloading to the student/user workstations 1 12 and 1 14.

In another embodiment... ..programs.

By providing standard players and integrating these supporting technologies, the Java Media Application Program Interfaces (APIs) enable developers to produce and distribute media-rich **content** such as educational **content**.

Java Sound presently enables Java programs to read and write sampled and synthesized **audio** data high-level services such as compression, decompression, synchronization, streaming, container read/write, and network transport through the Java Media Framework (JMF). JMF provides a simple, unified way for Java Programs to synchronize and display time-based data such as **audio** and video.

Java Sound provides a very high- quality 64-channel **audio** rendering and MIDI sound synthesis engine that enables consistent, reliable, high-quality **audio** on all Java platforms ; minimizes the impact of **audio**-rich web pages on computing resources; reduces the need for high-cost sound cards by providing a software-only solution that requires only a digital-to-analog converter (DAC). Java Sound supports a wide range of **audio** formats so that **audio** clips can record and play from both applet-type programs and applications. The clips can be any of the following **audio** file formats: AIFF, AU, WAV. MIDI (Type 0 and Type I files) and RMF, among others.

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Referring now to Fig. 2, process 200, an... ..a student/user. such as a student, logs-on to one of servers 1 16 and II 8 (Fig. 1) operated by one or more **content** providers (step 202). The log-on process can be controlled by a subscription control model where the student/user pays a onetime **course** fee or a periodic fee (for example monthly) for access to the service.

Additionally, the system supports a pay-per-view control model where the student/user pays each time he or she accesses a stream on **content**. In the subscription model the system ensures that only valid customers gain access. Once the subscription has been established, access to subscription set-vices is transparent to the student/user, unless the subscription I 0 expires. In the pay-per-view model, the student/user gains access to the **content** through a secure web page. The student/user may enter credit card information or provide payment in some other way. Only when the payment has been validated is the student/user's player allowed to **access** the **content** stream.

**After** gaining entry to the **content** provider's server, the student/user **accesses** one or 5 more multimedia **content** files, including lessons, exercises or planned activities provided by the **content** provider (step 204). Next, the invention applet-type program herein described is either downloaded from the same **content** provider (for example, an educational publisher), or from some other source such as a separate educational portal site or server (step 205).

The applet-type... ..the applet-type program on the computer's screen to facilitate the training process. Depending on the number of functions to be provided by the **content** provider or server site operator, one or more of the following buttons can be shown: a record button, a playback button; a check button; a...input of the student/user is retrieved from the memory or data storage device (step 250).

Next, the sound input can be streamed to the **audio** system and played for the student/user to

I 0

provide a multimedia example to imitate and learn from (step 256) or to allow the user to **listen** to his or her own sound input for analysis.

Through the record/playback functions, the student/user can imitate a sound model and, upon reaching... ..I 0 automated end-point detection process may be used to stop the recording process. The end-point detection process identifies sections in an incoming **audio** signal that contain speech. In one embodiment, the detection process detects as an end-point when the sound input is silent (no other noises). Typical algorithms look at the energy or amplitude of the incoming signal and at the rate of "zero-crossings". A zero-crossing occurs when the **audio** 5 signal changes from positive to negative or visa versa. When the energy and zero-crossings are at certain levels, the end-point detection process...not wish to retry the lesson or exercise, the process 230 exits.

The analysis in step 274 can also be done using a number of **audio** or speech processing functions which essentially analyze a complex signal such as the voice as being made up of the sum of sound waves of... ..presence of frequencies at any given moment in the speech signal. The Fourier transform can analyze a signal in the time domain for its frequency **content**. The transform works by first translating a function in the time domain into a function in the frequency domain. The signal can then be analyzed for its frequency **content** because the Fourier coefficients of the

I

transformed function represent the contribution of each sine and cosine function at each frequency.

The result of Fourier...

### Claims:

...data over a spectrogram associated with one or more multimedia source files.

7 The method of claim 3, wherein the multimedia data is speech or **audio** data.

8 The method of claim 3 ), wherein the multimedia data is video data.

9 The method of claim 2, wherein the applet-type program... ..data; and archive the captured multimedia data on a server over the network.

18 A remote training system, comprising:  
a server adapted to download instructional **materials** over a network and to  
archive captured multimedia data over the network; a workstation adapted to communicate  
with the server, the workstation including means for... ..and capture multimedia data;  
and means for archiving the captured multimedia data over a network.

19 The method of claim 18, wherein the server sends **materials** from a publisher.

20 The method of claim 18, wherein the server sends **materials** from a **content** provider.

1 9/8100116 118 Server U Server I I 114 Student Student FIGs 12029-on to coF-Fo  
provide... ..254 Store captured sound input in a memory structure FIGw  
3A209ay250 Retrieve sound input from memory structure 256 Send sound input to **audio**  
system for sound system FIGw 3B/8220ec262 analyze user sound input 264 Y User in pi i  
,Imeets stand alrd 265266...

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DIALOG(R) File 349: PCT FULLTEXT  
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### Detailed Description:

...present invention for automatically generating a contract between an owner of software  
and a user of the software Figure 22 is a flowchart illustrating the **content** channels-  
related web application

services in accordance with one embodiment of the present invention;

Figure 23 is a flowchart illustrating the customer relationship management-related... ..of  
the customer relationship management-related web application services in accordance  
with one

embodiment of the present invention;

Figure 24 is a flowchart illustrating the **content** management and publishing-related web  
application services in accordance with one embodiment of the present invention; Figure  
25 is a flowchart illustrating the education-related...A plurality of components are shown  
which are necessary to afford various activities over the Internet.

Such components may include: an electronic commerce component, a **content** channels  
component, an administrative component, a customer relationship management  
component, a **content** management and publishing services component, an education  
related services component, and a web customer service component. More detail about  
these and other components is provided...in an otherwise prioritized relation to, the.  
secondary components in the listing in operation 36b. Further, any tertiary components  
that should or must be installed **after** a particular secondary component should be

positioned below the corresponding secondary component on the listing, as in operation 36c. Thus, the listing provides a particular...It employs naming, directory, and authentication protocols on top of a shared, distributed, object repository. Users and applications can use the directory to locate and **access** information from anywhere in the network.

JavaWallet Java Electronic Commerce Framework (JECF) is Business I's new initiative to create a standard, secure framework within...group.

0 Calendar - delivers group scheduling based on a scalable real-time architecture.

Browser Custoinization

0 Business2 Business Customization. Kit enables Internet service providers, Internet **content** providers, hardware OEMs, and others to create customized versions of Product2.

0 Business2 Mission Control Desktop - cross platform administration tools to configure, deploy, centrally manage... ..scale web sites. Business2 Enterprise Server includes a built-in search engine and supports standard security and authentication. The integrated LiveWire Pro software also adds **content** management, data access, and session management capabilities.

Business2 also offers FastTrack Server - an entry-level enterprise server with limited functionality.

Business2 A middleware infrastructure that... ..Software Developer's Kit provides application programming interfaces that enable developers to directory-enable their applications.

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ox A system for caching and filtering web **content**, log analysis, and boosting network performance.

Bussiness2 Calenda A calendar server that supports the scheduling of meetings, appointments, and resources for thousands of users.

Server

Bussiness2 Chat A newsgroup server that provides collaboration services Server through discussion groups. Business2 Chat Server also supports the moderation of **content** and administration of discussion groups.

Business2 An email server that delivers messages with embedded sound, Messaging Server graphics, video files, HTML forms, Java applets, and... ..capabilities to help administrators gather and organize enterprise resources scattered across intranets so that users can find and retrieve information more efficiently.

Media Server - An **audio** publishing, broadcasting, and receiving system that enables the creation and delivery of media-rich information, both inside and outside the enterprise.

Media server includes four components.

" Media Server - play real-time **audio** feeds, provide on-demand access to pre-recorded **audio** clips, and synchronize **audio** with HTML documents, Java applets, and JavaScript applications.

Media Proxy Server - a transparent intermediary between Media Player and Media Servers which provides safe passage through the firewall for **audio** connections and operates as a reverse-proxy outside a firewall.

" Media Converter - compresses and converts different **audio** formats.

\* Media Player - a plug-in needed to access **audio** files or a live feed from a Media Server.

1.4

30

.5 Business3 (www.business1.com)

Business3 primarily provides Internet services for web users. It offers...Platform for dynamic web applications.

Business3server Dynamic Pages (ADPs)

Supports Business3server's C and TO scriptin; and APIs

Supports database connectivity

Allows users to edit **content** across the network with Business3press or other authoring tools

\* Provides C API plug-in that can be used to serve and rotate web advertisements, as... ..web architecture framework of the present invention. An overview of the hardware and software involved in implementation of the present invention will first be described **after** which the web architecture will be described in detail.

A preferred embodiment of a system in accordance with the present invention is preferably practiced in...independent Java applets." Java applets are small, specialized applications that comply with Sun's Java Application

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Programming Interface (API) allowing developers to add "interactive **content**" to Web documents (e.g., simple animations, page adornments, basic games, etc.). Applets execute within a Java-compatible browser (e.g., Netscape Navigator) by copying... ...Another technology that provides similar function to JAVA is provided by Microsoft and ActiveX Technologies, to give developers and Web designers wherewithal to build dynamic **content** for the Internet and personal computers. ActiveX includes tools for developing animation, 3-D virtual reality, video and other multimedia **content**. The tools use Internet standards, work on multiple platforms, and are being supported by over 100 companies. The group's building blocks are called ActiveX...accompany the technical change. This is also true of the development environment. When a new development environment is put in place, the developers need to **learn** not only how each individual tool works (for example, how to use the compiler), but also how the tools work together to support the organization...responsibility to ensure consistency across all these formats.

The responsibilities of the Information Management team therefore cover.

Repository Management

0 Folder Management

Object Management

Media **Content** Management

Information and data reuse coordination

In addition to managing the information for the System Building team, the Information Management team must also manage the... ...designs

0 Packaging classes and components for reuse

Managing maintenance and upgrades of common components (a strong relationship with Configuration Management team is required)

Media **Content** Managemen

The methods of handling media **content** are somewhat different from those surrounding more traditional development **content** such as code or documentation, for this reason, a role should be defined that is responsible for the management of all media **content**.

Quality Management

The Quality team is responsible for defining and implementing the Quality Management Approach, which means defining what Quality means for the Program Leadership...and so forth.

As systems become more user-facing, important new roles are emerging that must be integrated into the Application Development teams.

#### a) Media **Content** Design

For any system with a user-facing component, it is extremely important that media and design specialists are involved as team members at an... ..creative and attractive user interfaces, but also reduces the risk of further alteration to work at a later stage.

#### b) Usability

Often coupled with Media **Content** Design, it is vital that a role for usability is defined within the Application Development teams. This will ensure the usability of the system from...202)

A vast amount of information is generated within the development environment, which needs to be carefully managed (for example, design documentation, application code, media **content**, test plans and test data). Information Management generally involves Repository Management, Folder Management and, where applicable, Object Management and Media **Content** Management.

Since a number of teams rely on the service provided by the information management team, it is important that the level of service to... ..Security Maintenance

Validation and mass change

Analysis, reporting, and querying

Security

Restricted access to various repository object types is necessary to ensure high quality repository **content**, because developers sometimes take shortcuts and make unauthorized changes to meet their deadlines. When standards have been set, a good way to enforce them is...and the kinds of contents it should hold.

0 Perform regular clean-up, by backing up redundant or misplaced files and then removing them.

#### Media **Content** Management (106)

The unique nature of media **content** means that it cannot be treated in the same way as 'standard' formats, such as source code or design documentation. The major differentiating factors are... ..e. it is not easy to 'look into' a media file and understand its contents). For this reason, some of the processes that support multimedia **content** management must be handled differently.

The three major processes that are required to support media **content** management are.

Storage management

Metadata management

Version control

Storage Management

Storage management concerns the methods of storing and retrieving media **content**.

The cost of data storage may be decreasing, but it is still the case that for large volumes of media it is often uneconomical to... ..example, hard disk)

Near-line(delayed access,forexample,CD-ROMjukebox)

Off-line (manual access, for example, CDs or tapes on shelves)

When deciding on where media **content** should be stored, there is always a trade-off between accessibility and cost (on-line storage being the most accessible and most

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expensive, and... ..accessibility requirements.

### Metadata Management

Data about the media that is being stored is an important commodity that must be managed. As the volume of media **content** grows, it is vital to be able to understand characteristics of the media, in order to be able to manage it correctly. Examples of metadata attributes)

Usage details (which module uses the **content**)

Media source (for example, Source, author, creation date)

Legal information (for example, whether the media is copyrighted)

### Version Control

As with standard development code, when media **content** is created and edited, a revision history of changes should be retained. This way, if it is necessary to revert to an original piece of media **content**, it is not necessary to go all the way back to the original source (which in the case of finding an image in a CD... ..storing the original and final copies of media (especially where volume is an issue). For this reason, a process for managing multiple versions of media **content** must be put into place.

The more advanced media **content** management tools may provide much of the functionality required to support these processes, but where this is not the case, the processes must be implemented manually.

### c) Legal Issue Management

When dealing with media, it is often the case that **content** may be subject to copyright laws. It is important that the legal implications surrounding all **content** in the system is understood, and where necessary, royalties paid to the appropriate parties.

### Object Management (108)

Object Management processes are very similar to those...The coordination of products that contribute to a release

The coordination of products that contribute to a release is the maintenance of a bill of **materials** for a release. It is an inventory of all software and hardware components that are related to a given release. The development environment is directly...the development of richer user interfaces, so the design processes must adapt to reflect these new technologies. The processes that surround the design of media **content** are similar to that of regular system design, and many of the same issues that apply to designing traditional user interfaces also apply to the design of media **content**. The major change is the involvement of media **content** designers - a group of people not traditionally associated with system design and development. As their presence is relatively new to the scene of systems development, it is often the case that media **content** designers are not fully integrated into the development team - a potentially costly mistake. It is important to

ensure that media **content** designers are involved in the design process at a very early stage, and that they are fully integrated into the application design and construction teams... ..allow the development of not only media-rich interfaces, but also the functionality that lies behind them. This means that the role of the media **content** designer may now range from that of designing the look and feel of a user interface, to developing the entire presentation layer of an application... ..is implemented. This communication should involve all the parties involved in the design of the system, and is usually conducted in the form of an **audio** conference. Through this process, it must be

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ensured that all parties are approaching problems from the same direction, and that they are thinking about...agenda is closely followed. Action points and commitments made during these calls must also be documented. Where issues arise that cannot be resolved using an **audio** conference (usually because the subject is based on a visual concept), video conferencing may be necessary.

#### E-Mail (138)

E-mail provides the capability of... ..binary files to messages. E-mail is a convenient tool for distributing information to a group of people, as it has the advantage of delivering **content** directly to the 'mailbox' of each individual, rather than relying on individuals to access a central data repository in order to retrieve the information.

#### Implementation Considerations

a) Is e-mail likely to contain sensitive information?

When setting up an e-mail system, it is important to consider the **content** that will be transferred using the system and to apply the appropriate security controls accordingly.

0 Is communication outside the local environment necessary?

9 Is...the project team?

Teamware will generally only be effective when used within large groups of people.

Unless a critical mass of people is achieved and **content** is regularly added to the system, interest will soon dwindle, and the system will no longer be of any value.

#### Group Scheduling (142)

Group scheduling... ..each member of the group must always be current. This is the responsibility not only of the group scheduler, but also of the individuals involved.

#### **Audio** / Video Conference (144)

In an ideal world, all meetings would be conducted face to face. In reality, however, it is often the case that not all the individuals who are required to take part in a meeting are on the same site. To overcome this problem, **audio** and video conferencing tools allow many individuals in different locations to communicate simultaneously. **Audio** conferencing is not a new concept, but remains a valuable tool for conducting meetings where the issues being discussed do not require the support of... ..a much richer method of communication.

## Implementation Considerations

a) Is there enough bandwidth to support a video conferencing system?

Adding bandwidth intensive applications such as **audio**, video, and data conferencing could have severe effects on the network infrastructure and this must be anticipated. This type of implementation is also based on... ..same application running on multiple PCs. In this way they can simultaneously create and edit a single, common file. Application sharing may be combined with **audio** conference.

## Process Management (1006)

Process Management may be categorized into two areas.

0 Simple process integration 148, which concerns the simple integration of a sequence...credit card transactions.

100

Mobile code security - protects corporate resources, computer files, confidential information, and corporate assets from possible mobile code attack.

9 E-mail **content** filtering - allows organizations to define and enforce email policies to ensure the appropriate email **content**.

0 Application development security toolkits - allow programmers to integrate privacy, authentication, and additional security features into applications by using a cryptography engine and toolkit.

0... ..of access, successful and unsuccessful access or change attempts, etc.

101

c) What are the performance implications of the tool?

Some security services, such as **content** scanning or auditing, may add noticeable processing time and requirements to the system. Tools should be architected in such a way that performance impacts are...broad reuse. A facility for security is required to prevent unauthorized changes to the repository elements and hence to ensure high quality and consistent repository **content**. For example, restrictions are often placed on making changes to data elements because ad-hoc changes by a single designer could have devastating impacts on... ..and one lower-case repository. Bridges between these repositories are key. Quality of import/export capabilities of the various repositories are key.

In many instances, **content** may not be stored directly in the repository and must be placed in storage. In this case, only a reference is stored in the repository...place-holders for entities which reside outside the repository. With this scheme, the place-holder serves as a logical pointer. This scheme obviously requires some **between** read and write **access** Efficient search for a component across several folders

0 Migration **between** folders

Nested folders

Links to avoid duplication of components while still showing that a component belongs to several folders

Media **Content** Management (106)

Methods for storing and managing media **content** range from simple folder management techniques to multimedia digital asset management systems, capable of indexing and manipulating numerous multimedia data types. There are a number of key requirements for Media **Content** Management - in particular, a Media **Content** Management system should have the ability to.

0 Manage multiple file formats

0 Efficiently store high volume files

0 Manage metadata on files within the...processes implemented by the Information Management team depends on the richness of functionality provided by the tools chosen.

110

Additional functionality provided by advanced Media **Content** Management tools may include.

Intelligent indexing of media types (allowing specialized search facilities)

Capabilities for browsing media **content** (low-res images, previews)

0 High performance proprietary file systems (both in terms of speed and volume)

Implementation Considerations

a) natformats need to be supported?

The method of Media **Content** Management depends heavily on what media is to be stored. Ensure that the target media formats are understood before implementing the Media **Content** Management approach.

b) nere should media **content** be stored?

Where to store media **content** greatly depends on the volume of media to be stored, and the performance requirements for retrieving that data. One thing is certain however; when dealing... ..be communicated. ComputerBased Training (CBT) tools offer the advantage of being able to train personnel directly on the target environment.

At the more basic level, **training** tools can also include **online** or paper-based **training materials** - not offering all the advantages of CBTs, but still providing the flexibility and convenience because they can be conducted as and when the trainee requires, and in any location. This removes the need to organize classes.

The decision of whether to use CBT, **online**, paper-based or instructor-led **training** is affected by the number of people that have to be trained, the complexity of the subject, and the availability and distribution of the people...e) Is there a large number of components?

It may be necessary to keep track of and control configurations consisting of objects such as training **materials**, documentation, hardware components, system software and even building characteristics. The existence of a large number of such components makes the

task of managing their configurations...b) Is the system complex?

Change control has broader applicability than to just application source code. It may also affect the look and feel, training **materials**, documentation, and so forth. Change Control must be formalized if the system is complex with many components.

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c) Do changes need to be authorized... ..The tool should be able to classify change requests into categories such as incidents, faults, or enhancements. The tool should also have the ability to **update** these categories if required.

Classification of different change requests in several different ways such as area affected, priority, estimated cost or authorization is important to...e) Is the system complex (consisting of more than 1000 components)?

The task of promoting components and locking these components to prevent concurrent or unauthorized **updates** to them or their dependents becomes very intricate as the number of components reaches 1000. Migration control tools can be used to improve productivity by...anticipated. The large volumes of complex data generally require automation of backups and restores.

The advent of Netcentric technologies has introduced an increase in media **content** that requires storage. The environment may support a high volume of media files, which must be considered in the backup/restore plans. Storage capacity planning... ..location of access, successful and unsuccessful access or change attempts, etc.

c) What are the performance implications of the tool?

Some security services, such as **content** scanning or auditing, may add noticeable processing time and requirements to the system. Tools should be architected in such a way that performance impacts are...the specification in the previous stage, detecting an error in a stage after it was made may invalidate some or all of the work done **between** the time the issue was created and the time it was discovered.

The V-model specifies that testing in one stage must be completed before... ..criteria for each stage is that the test has been successfully executed, therefore ensuring the test objectives (or primary focus of the test) are accomplished **before** moving on to the next stage.

Once the objectives of one test stage are met, there is no need to repeat the same testing at... ..the current stage of testing, ultimately resulting in minimal, if any, time for the last stage of testing. In other words, minimize gaps and overlaps **between** the testing stages while ensuring quality of delivery.

It is possible, however, that testing at one stage may, and should, use test scripts from previous...and relationships between entities, along with physical constructs such as database definitions and table indices.

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It is useful for developers to have read-only **access** to either a hard or soft copy of the data model during development. This document rapidly becomes a key discussion document in design discussions. It...to the interface. Problems the users may have in working with the interface can be identified early on, and can be accounted for in training **materials** that are developed.

p) Is there a high degree of innovation in the workflow?

Prototyping allows the developers to experiment and, with input from users...of environment therefore entails the generation of HTML pages, often with additional components (JavaScript, 3rd party ActiveX controls, Plug-ins) providing enhanced functionality or media **content**. Many tools are currently available for designing and creating web **content**, although HTML remains the common denominator, at the very least as a placeholder for the **content**.

In the case of systems published on the Internet, defining the target audience is less straightforward than in traditional systems, but equally important. Having a...at type of learning curve is associated with the tool?

Developers using the product should be able to become productive quickly.

Factors which reduce the **learning** curve include an easy to **learn** and intuitive interface, thorough and clear documentation, and on-line help.

k) Can the tool be used for both prototyping and GUI design?

The ability to...understanding the E-R diagram represented by the database, it is easier to create an efficient persistence framework which isolates business components from a direct **access** to relational databases. Caution is required, however, as the resulting model is at best only partial, as an object model has dynamic aspects to it...wrapping an object/code. As objects/code become more complex, with more functions/interfaces, then the value of wrapping them becomes more tangible.

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### Media **Content** Creation

As systems become increasingly user-facing, it is important to design user interfaces that are not only functional, but also engaging and informative. This... ..evolution of media-rich applications, the development of which requires new tools and processes, and brings with it a whole new set of issues.

Media **content** can be broken down into three major media types, each with its own set of tools.

#### 2D/3D Images/Animation

##### Video

##### **Audio**

#### 2D/3D Images/Animation

Tools to handle these images range from simple paint packages to highly complex multi-layered animation graphics packages. The images created by these... ..use of high-quality

textured images, or highly colored images is important, but where file storage and transmission is not an issue (where the media **content** is local to the client application, such as in a kiosk).

Vector-based tools (where the image is defined by formulae rather than pixel position... ..process of video production mean that it is usually outsourced to a third party. It is important however that the personnel charged with creating video **content** are an integral part of the Application team.

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### **Audio**

The tools required for creating **audio content** depend on the quality required, and whether or not the **content** is original. For 'sound bites' or pre-recorded **audio**, simple desktop **audio** editing applications are adequate. For high-quality original **content**, a 5 professional recording studio is recommended. Again, if third parties are involved, it is important that they are fully integrated into the team.

For both image and **audio**, it is possible to purchase re-usable **content** from agencies, usually delivered in the form of CD-ROMs.

NOTE: Tools required to store and manage media **content** (and storage formats) are discussed in Tools - Information Management - Media **Content** Management (136)

Testing applications (client/server or Netcentric) remains a complex task because of the large number of integrated components involved (for example, multiplatform... ..is vital to have a repository that is capable of managing the data required by each of the test subcomponents. The repository should manage the **following** entities.

Test conditions

0 Test cycles

System Investigation Requests (SIRs), triggered by a deviation of actual results from those expected

Test data

Requirements

Within the... ..switching between cycles and repeating a cycle based on the original data created for that cycle.

Test Data Management functionality may be provided by the **following** tools.

" Test data generation tools - usually generate test data by permutation of values of fields, either randomly or systematically.

" Test design repository tools - facilitate structured...

**Claims:**

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access to web **content** and data based upon war privileges Determines if a wer or group  
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(create... ..note and rerrimber One or mom preceding location I events In a given  
sequence of interactions with the user or application Serves up previously cachad **content**  
without accessing original source (3 Tracks state and session Information Updates cache  
automatically to ensure Integrity of **content** OManages multiple independent SOSSiOnS  
SinWIMAGOUSly active0Supports Client CookiesN Passes requests from tudernall  
clients to internal web servers and return results 0Supports Client URL... ..client  
communication enrom web browsers E3 Provides adapter or mechanism to communicate  
with mdarnall system E3 Supports page rendering for multiple languages hat provide  
additional **content** such se catalog information0 Supports multiple **content** sources (file  
system, databases, scripts)O Provides reporting and logging functions to detect  
comunicabon amrsFigure 10Businessi-Business2-Business3 Alliance Le6endCustomer  
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anagement214204... ..software \* Design Reviewoperations 0 General Technical  
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planningcomponent design & aMedia **content** design oTest executionconstruction  
Coding eSIR@Technical standards \*Usability @Managementdesign/ documentation  
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testingeSecurity \*SIR resolution 13561362 641360Figure 131400 1414 1416 14021406  
 1408 1410/security Services Network Services Internet Servicenr Based Web **Content**  
 Caching IITTP ' Page File Transfer SomiceAuth tication (RADIUS) Rendering (FTP)F-  
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 Webvalluallon. 11 n: I M G.Mill 11--l vVvb Applicala Storage of Sam...Figure  
 21A2108DOWNLOADING DATA2TRANSMITTING DATA BASED ON USER  
 SPECIFICATIONS2204PROVIDING A PLURALITY OF NEWSGROUPS TO  
 WHICH USERS  
 SUBSCRIBEIOUTPUTTINGANSWERSTOFREQUENTLYASKEDQUESTIONSREL  
 ATINGTOTHE 2206**CONTENT**-RELATED WEB APPLICATION  
 SERVICES220ENABLING REAL TIME COMMUNICATION BETWEEN A  
 PLURALITY OF THE USERSICOORDINATING THE TRANSMISSION OF  
 ELECTRONIC MAIL 22102212ORGANIZING... ...ITEM EACH TIME A USER USES  
 THE SYSTEM2323LOGGING THE USER'S CURRENT ACTIVITIES AND  
 ENTERING THEMINTO THE DATABASEFigure 23B2310DEVELOPING  
**CONTENT** OF A DATA INTERFACE FOR ACCESSING DATA ON ANETWORK-  
 2MANAGING THE **CONTENT** OF THE DATA INTERFACEAPPROVING THE  
 PUBLICATION OF THE **CONTENT** BEFORE TRANSMISSION OF THE  
 404**CONTENT**TTESTING THE **CONTENT** OF THE DATA INTERFACE  
 24061408Figure 24GENERATING A CURRICULUM OF **COURSE**  
 OFFERINGS2502ALLOWING THE SELECTION OF THE **COURSE**  
 OFFERINGS504EDUCATING USERS OVER A NETWORK /o,@@I  
 2506DISPLAYING A STATUS OF THE EDUCATION OF THE USERS INCLUDING  
 AT LEASTONE OF THE **COURSES** COMPLETED AND SCORES FOR THE  
**COURSES** COMPLETED1410Figure 25ALLOWING A USER TO REVIEW  
 EDUCATIONAL PROGRAM OFFERINGS /2510PROMPTING THE USER TO  
 ENTER USER INDICIA /25112512RECEIVING THE USER... ...TO AT LEAST ONE  
 OF APPLICATION AND SYSTEM 2702DATA BASED ON THE USER  
 VERIFICATION DATAENABLING VIRTUAL PRIVATE NETWORKING  
 2704Figure 271414CACHING **CONTENT** OF A NETWORKPROVIDING  
 APPLICATION PROXY SERVICES ON THE NETWORKMANAGING RESOURCES  
 OF THE NETWORKMANAGING NETWORK OBJECTS ON THE NETWORK 2806I

F0... ...THE NETWORK FRAMEWORK3004ENABLING NETWORK FRAMEWORK  
 BROWSING IN THE NETWORK FRAMEWORK/@N,"jIOUTPUTTING ANSWERS  
 TO FREQUENTLY ASKED QUESTIONS RELATING TO THE 3006CONTENT-  
 RELATED WEB APPLICATION SERVICES300PROVIDING NEWS READER  
 CAPABILITIES IN THE NETWORK ...CENTERS OVER THE NETWORK  
 FRAMEWORK 32061422 Figure 32PROVIDING LOCATOR CAPABILITIES OVER  
 A NETWORK FRAMEWORK 3300TRANSMITTING AT LEAST ONE OF  
 STREAMING VIDEO AND **AUDIO** DATA 3302OVER THE NETWORK  
 FRAMEWORKLOGGING EVENTS OVER THE NETWORK FRAMEWORK  
 3304PASSIVELY MANAGING USER PROFILE INFORMATION OVER THE  
 3306NETWORK FRAMEWORK1426 Figure...

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 DIALOG(R)File 349: PCT FULLTEXT  
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	Country	Number	Kind	Date
Patent				19

### Detailed Description:

...present invention for automatically generating a contract between an owner of software and a user of the software

Figure 22 is a flowchart illustrating the **content** channels-related web application services in accordance with one embodiment of the present invention;

Figure 23 is a flowchart illustrating the customer relationship management-related... ...of the customer relationship management-related web application services in accordance with one

embodiment of the present invention;

Figure 24 is a flowchart illustrating the **content** management and publishing-related web application services in accordance with one embodiment of the present invention; Figure 25 is a flowchart illustrating the education-related...various activities over the Internet.

Such components may include: an electronic commerce component, acontent channels component, an administrative component, a customer relationship management component, a **content** management and publishing services component, an education related services component, and a web customer service component. More detail about these and other components is provided...for developing Java-based applications in Productl and Java. It incorporates wizards and editors for creating web-based applications, including

construction of user interface, data **access** and PACs. It also integrates with source code control, testing and deployment tools.

Product1 Application Server - a Java- and CORBA-based server that provides state...I

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qlltq@@ nmerm

A suite of pre-built applications that run on Business2's Application Server. These applications include buying, selling, merchandising, and delivering **content** over the Internet.

Product2 ECProduct I - Software for the integration of eCommerce applications with legacy systems. It provides for the sending, receiving, and encrypted transmission... ...PublishingProduct1 - An application that utilizes both passive and active customer profiling capabilities to create targeted advertising, and to deliver personalized information for superior customer service. **Content** management tools are combined with application development tools to allow to host and deploy multiple sites.

MerchantProduct I -An online business-to consumer merchandising solution... ...in a group.

Calendar - delivers group scheduling based on a scalable real-time architecture.

Browser Customization

Business2 Business Customization Kit enables Internet service providers, Internet **content** providers, hardware OEMs, and others to create customized versions of Product2.

Business2 Mission Control Desktop - cross platform administration tools to configure, deploy, centrally manage, and... ...scale web sites. Business2 Enterprise Server includes a built-in search engine and supports standard security and authentication. The integrated LiveWire Pro software also adds **content** management, data **access**, and session management capabilities.

Business2 also offers FastTrack Server - an entry-level enterprise server with limited functionality.

Business2 A middleware infrastructure that supports the development... ...Software

Developer's Kit provides application programming interfaces that enable developers to directory-enable their applications.

Business2 Proxy A system for caching and filtering web **content**, log analysis, SPryor and boosting network performance.

A calendar server that supports the scheduling of meetings, Bussiness2 Calenda appointments, and resources for thousands of users...capabilities to help administrators gather and organize enterprise resources scattered across intranets so that users can find and retrieve information more efficiently.

Media Server - An **audio** publishing, broadcasting, and receiving system that enables the creation and delivery of media-rich information, both inside and outside the enterprise.

Media server includes four components.

Media Server - play real-time **audio** feeds, provide on-demand access to pre-recorded **audio** clips, and synchronize **audio** with HTML documents, Java applets, and JavaScript applications.

Media Proxy Server - a transparent intermediary between Media Player and Media Servers which provides safe passage through the firewall for **audio** connections and operates as a reverse-proxy outside a firewall.

Media Converter - compresses and converts different **audio** formats.

Media Player - a plug-in needed to access **audio** files or a live feed from a Media Server.

4

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. 5 Business3 (www. business3. com)

Business3 primarily provides Internet services for web users. It...platform-independent Java applets." Java applets are small, specialized applications that comply with Sun's Java Application Programming Interface (API) allowing developers to add "interactive **content**" to Web documents (e.g., simple animations, page adornments, basic games, etc.). Applets execute within a Java-compatible browser (e.g., Netscape Navigator) by copying... ..Another technology that provides similar function to JAVA is provided by Microsoft and ActiveX Technologies, to give developers and Web designers wherewithal

to build dynamic **content** for the Internet and personal computers. ActiveX includes tools for developing animation, 3-D virtual reality, video and other multimedia **content**. The tools use Internet standards, work on multiple platforms, and are being supported by over 100

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companies. The group's building blocks are called...may significantly reduce productivity.

In the same way, when a new business capability is introduced, it is crucial to keep in mind the needs for **training** and organizational change that which may accompany the technical change. This is also true of the development environment. When a new development environment is put...responsibility to ensure consistency across all these formats.

The responsibilities of the Information Management team therefore cover.

Repository Management

0 Folder Management

Object Management

Media **Content** Management

Infon-nation and data reuse coordination

In addition to managing the information for the System Building team, the Information Management team must also manage... ..Reviewing designs

Packaging classes and components for reuse

Managing maintenance and upgrades of common components (a strong relationship with Configuration Management team is required)

Media **Content** Management

The methods of handling media **content** are somewhat different from those surrounding more traditional development **content** such as code or documentation, for this reason, a role should be defined that is responsible for the management of all media **content**.

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Quality Management

The Quality team is responsible for defining and implementing the Quality Management Approach, which means defining what Quality means for the Program...so forth.

As systems become more user-facing, important new roles are emerging that must be integrated into the Application Development teams.

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a) Media **Content** Design

For any system with a user-facing component, it is extremely important that media and design specialists are involved as team members at an... ..creative and attractive user interfaces, but also reduces the risk of further alteration to work at a later stage.

## b) Usability

Often coupled with Media **Content** Design, it is vital that a role for usability is defined within the Application Development teams. This will ensure the usability of the system from...202)

A vast amount of information is generated within the development environment, which needs to be carefully managed (for example, design documentation, application code, media **content**, test plans and test data). Information Management generally involves Repository Management, Folder Management and, where applicable, Object Management and Media **Content** Management.

Since a number of teams rely on the service provided by the information management team, it is important that the level of service to... ..Maintenance  
51

Validation and mass change

Analysis, reporting, and querying

Security

Restricted access to various repository object types is necessary to ensure high quality repository **content**, because developers sometimes take shortcuts and make unauthorized changes to meet their deadlines. When standards have been set, a good way to enforce them is...and the kinds of contents it should hold.

0 Perform regular clean-up, by backing up redundant or misplaced files and then removing them.

## Media **Content** Management (106)

The unique nature of media **content** means that it cannot be treated in the same way as 'standard' formats, such as source code or design documentation. The major differentiating factors are... ..e. it is not easy to 'look into' a media file and understand its contents). For this reason, some of the processes that support multimedia **content** management must be handled differently.

The three major processes that are required to support media **content** management are.

Storage management

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Metadata management

Version control

Storage Management

Storage management concerns the methods of storing and retrieving media **content**.

The cost of data storage may be decreasing, but it is still the case that for large volumes of media it is often uneconomical to... ..example, hard disk)

\* Near-line(delayed access,for example,CD-ROMjukebox)

Off-line (manual access, for example, CDs or tapes on shelves)

When deciding on where media **content** should be stored, there ...accessibility requirements.

## Metadata Management

Data about the media that is being stored is an important commodity that must be managed. As the volume of media **content** grows, it is vital to be able to understand characteristics of the media, in order to be able to manage it correctly. Examples of metadata include.

Media type (for example, MPEG video, JPEG image)

Media settings (for example, sample rate, resolution, compression attributes)

Usage details (which module uses the **content**)

Media source (for example, Source, author, creation date)

Legal information (for example, whether the media is copyrighted)

## Version Control

As with standard development code, when media **content** is created and edited, a revision history of changes should be retained. This way, if it is necessary to revert to an original piece of media **content**, it is not necessary to go all the way back to the original source (which in the case of finding an image in a CD... storing the original and final copies of media (especially where volume is an issue). For this reason, a process for managing multiple versions of media **content** must be put into place.

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The more advanced media **content** management tools may provide much of the functionality required to support these processes, but where this is not the case, the processes must be implemented manually.

## c) Legal Issue Management

When dealing with media, it is often the case that **content** may be subject to copyright laws. It is important that the legal implications surrounding all **content** in the system is understood, and where necessary, royalties paid to the appropriate parties.

## Object Management (108)

Object Management processes are very similar to...The coordination of products that contribute to a release

The coordination of products that contribute to a release is the maintenance of a bill of **materials** for a release. It is an inventory of all software and hardware components that are related to a given release. The development environment is directly...the development of richer user interfaces, so the design processes must adapt to reflect these new technologies. The processes that surround the design of media **content** are similar to that of regular system design, and many of the same issues that apply to designing traditional user interfaces also apply to the design of media **content**. The major change is the involvement of media **content** designers - a group of people not traditionally associated with system design and development. As their presence is relatively new to the scene of systems development, it is often the case that media **content** designers are not fully integrated into the development team - a potentially costly mistake. It is important to ensure that media **content** designers are involved in the design process at a very early

stage, and that they are fully integrated into the application design and construction teams... ..allow the development of not only media-rich interfaces, but also the functionality that lies behind them. This means that the role of the media **content** designer may now range from that of designing the look and feel of a user interface, to developing the entire presentation layer of an application... ..is implemented. This communication should involve all the parties involved in the design of the system, and is usually conducted in the form of an **audio** conference. Through this process, it must be ensured that all parties are approaching problems from the same direction, and that they are thinking about the...agenda is closely followed. Action points and commitments made during these calls must also be documented. Where issues arise that cannot be resolved using an **audio** conference (usually because the subject is based on a visual concept), video conferencing may be necessary.

#### 5 E-Mail (138)

E-mail provides the capability... ..files to messages. E-mail is a convenient tool for distributing

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information to a group of people, as it has the advantage, of delivering **content** directly to the 'mailbox' of each individual, rather than relying on individuals to access a central data repository in order to retrieve the information.

#### Implementation Considerations

a) Is e- mail likely to contain sensitive information?

When setting up an e-mail system, it is important to consider the **content** that will be transferred using the system and to apply the appropriate security controls accordingly.

Is communication outside the local environment necessary?

Is remote access...the project team?

Teamware will generally only be effective when used within large groups of people.

Unless a critical mass of people is achieved and **content** is regularly added to the system, interest will soon dwindle, and the system will no longer be of any value.

#### Group ScheduUng (142)

Group scheduling... ..member of the group must always be current. This is the responsibility not only of the group scheduler, but also of the individuals involved.

88

#### **Audio** / Video Conference (144)

In an ideal world, all meetings would be conducted face to face. In reality, however, it is often the case that not all the individuals who are required to take part in a meeting are on the same site. To overcome this problem, **audio** and video conferencing tools allow many individuals in different locations to communicate simultaneously. **Audio** conferencing is not a new concept, but remains a valuable tool for conducting meetings where the issues being discussed do not require the support of... ..a much richer method of communication.

## Implementation Considerations

a) Is there enough bandwidth to support a video conferencing system?

Adding bandwidth intensive applications such as **audio**, video, and data conferencing could have severe effects on the network infrastructure and this must be anticipated. This type of implementation is also based on... ..I 0 running on multiple PCs. In this way they can simultaneously create and edit a single, common file. Application sharing may be combined with **audio** conference.

## Process Management (1006)

Process Management may be categorized into two areas.

Simple process integration 148, which concerns the simple integration of a 1 5...fraudulent credit card transactions.

Mobile code security - protects corporate resources, computer files, confidential information, and corporate assets from possible mobile code attack.

0 E-mail **content** filtering - allows organizations to define and enforce email policies to ensure the appropriate email **content**.

Application development security toolkits - allow programmers to integrat:privacy, authentication, and additional security features into applications by using a cryptography engine and toolkit.

9 Encryption... ..location of access, successful and unsuccessful access or change attempts, etc.

c) What are the performance implications of the tool?

Some security services, such as **content** scanning or auditing, may add noticeable processing time and requirements to the system. Tools should be architected in such a way that performance impacts are...broad reuse. A facility for security is required to prevent unauthorized changes to the repository elements and hence to ensure high quality and consistent repository **content**. For example, restrictions are often placed on making changes to data elements because ad-hoc changes by a single designer could have devastating impacts on...and one lower-case repository. Bridges between these repositories are key. Quality of import/export capabilities of the various repositories are key.

In many instances, **content** may not be stored directly in the repository and must be placed in storage. In this case, only a reference is stored in the repository... ..or by integrating point tools around a common repository.

In addition to the repository, which plays a key role, other important tool categories include the **following**.

k) Security

Repository **access** can sometimes be controlled using an **access** control function, which comes with the repository. A common technique is to group users and assign different access rights to the different groups. Each of...folders

Migration between folders

9 Nested folders

\* Links to avoid duplication of components while still showing that a component belongs to several folders

101

Media **Content** Management (106)

Methods for storing and managing media **content** range from simple folder management techniques to multimedia digital asset management systems, capable of indexing and manipulating numerous multimedia data types. There are a number of key requirements for Media **Content** Management - in particular, a Media **Content** Management system should have the ability to.

Manage multiple file formats

Efficiently store high volume files

Manage metadata on files within the system

Manage multiple... manual processes implemented by the Information Management team depends on the richness of functionality provided by the tools chosen.

Additional functionality provided by advanced Media **Content** Management tools may include.

Intelligent indexing of media types (allowing specialized search facilities)

Capabilities for browsing media **content** (low-res images, previews)

High performance proprietary file systems (both in terms of speed and volume)

Implementation Considerations

a) What formats need to be supported?

The method of Media **Content** Management depends heavily on what media is to be stored. Ensure that the target media formats are understood before implementing the Media **Content** Management approach.

b) Where should media **content** be stored?

Where to store media **content** greatly depends on the volume of media to be stored, and the performance requirements for retrieving that data. One thing is certain however; when dealing...be communicated. ComputerBased Training (CBT) tools offer the advantage of being able to train personnel directly on the target environment.

At the more basic level, **training** tools can also include **online** or paper-based **training materials** - not offering all the advantages of CBTs, but still providing the flexibility and convenience because they can be conducted as and when the trainee requires, and in any location. This removes the need to organize classes.

The decision of whether to use CBT, **online**, paper-based or instructor-led **training** is

affected by the number of people that have to be trained, the complexity of the subject, and the availability and distribution of the people...e) Is there a large number of components?

It may be necessary to keep track of and control configurations consisting of objects such as training **materials**, documentation, hardware components, system software and even building characteristics. The existence of a large number of such components makes the task of managing their configurations...b) Is the system complex?

Change control has broader applicability than to just application source code. It may also affect the look and feel, training **materials**, documentation, and so forth. Change Control must be formalized if the system is complex with many components.

c) Do changes need to be authorized by...anticipated. The large volumes of complex data generally require automation of backups and restores.

The advent of Netcentric technologies has introduced an increase in media **content** that requires storage. The environment may support a high volume of media files, which must be considered in the backup/restore plans. Storage capacity planning...location of access, successful and unsuccessful access or change attempts, etc.

c) What are the performance implications of the tool?

Some security services, such as **content** scanning or auditing, may add noticeable processing time and requirements to the system. Tools should be architected in such a way that performance impacts are...Internet is not a controlled environment, performance modeling is limited to those components within the domain of the controlled environment (i.e. up to the **Internet** Service Provider). However, In the case of intranet-based systems, where the environment is controlled from end-to-end, performance modeling may be performed across...to the interface. Problems the users may have in working with the interface can be identified early on, and can be accounted for in training **materials** that are developed.

p) Is there a high degree of innovation in the workflow?

Prototyping allows the developers to experiment and, with input from users...therefore entails the generation of HTML pages, often with additional components (JavaScript, 3rd party 1 5 ActiveX controls, Plug-ins) providing enhanced functionality or media **content**. Many tools are currently available for designing and creating web **content**, although HTML remains the common denominator, at the very least as a placeholder for the **content**.

In the case of systems published on the Internet, defining the target audience is less straightforward than in traditional systems, but equally important. Having a...using such components is that they have already been coded, tested, optimized, and documented.

Code and Object libraries may be differentiated from packaged components in **two** ways.

1 0 0 They contain little or no business logic

0 Source code is usually provided (as opposed to the 'black box' component

approach... ..of wrapping an object/code. As objects/code become more complex, with more functions/interfaces, then the value of wrapping them becomes more tangible.

### Media **Content** Creation

As systems become increasingly user-facing, it is important to design user interfaces that are not only functional, but also engaging and informative. This... ..evolution of media-rich applications, the development of which requires new tools and processes, and brings with it a whole new set of issues.

Media **content** can be broken down into three major media types, each with its own set of tools.

#### \* 2D/3D Images/Animation

Video

#### **Audio**

159

D13D ImagesAnimation

Tools to handle these images range from simple paint packages to highly complex multi-layered animation graphics packages. The images created by highly colored images is important, but where file storage and transmission is not an issue (where the media **content** is local to the client application, such as in a kiosk).

Vector-based tools (where the image is defined by formulae rather than pixel po... ..process of video production mean that it is usually outsourced to a third party. It is important however that the personnel charged with creating video **content** are an integral part of the Application team.

#### **Audio**

The tools required for creating **audio content** depend on the quality required, and whether or not the **content** is original. For 'sound bites' or pre-recorded **audio**, simple desktop **audio** editing applications are adequate. For high-quality original **content**, a professional recording studio is recommended. Again, if third parties are involved, it is important that they are fully integrated into the team.

For both image and **audio**, it is possible to purchase re-usable **content** from agencies, usually delivered in the form of CD-ROMs.

NOTE: Tools required to store and manage media **content** (and storage fori-nats) are discussed in Tools - Information Management - Media **Content** Management Test (136)

Testing applications (client/server or Netcentric) remains a complex task because of the large number of integrated components involved (for example, multiplatform...systems is necessary, hooks may need to be built into both the existing and new systems.

What are the data sharing requirements with otherfunctions?

Integration **between** functions will either require a tool capable of supporting both

functions, or hooks between tools.

170

What are the expected data / transaction volumes, and how...

## Claims:

...T'nows' Fw

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Education Services Web Customer Servic DRelationship Mgmt Publishing ServicesAn  
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Microsofts API (ISAPQ protocolEI Provides alternative to the interface mechanism that  
may be usedC3 Restricts access to web **content** and data based upon user privilegesC3  
Determines if a user or group of users have permission to manipulate CI Executes web  
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**content** without accessing original source E3 Tracks state and session information  
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independent sessions simultaneously activeE Supports Client CookiesPosses requests  
from extemal clients to internal web servers and return results 0 Supports... ...client  
communication arrom web browsers [3 Provides adapter or mechanism to communicate  
with exlemal systems C3 Supports page rendering for multiple languages that provide  
additional **content** such as catalog Information E Supports multiple **content** sources (file  
system, databases, scripts) 0 Provides reporting and logging functions to defeat  
communication efforsFigure 10Businessi-Businesp-business3 AllianceCustomer Facing  
Web Architecture...iqqtion502 504 T" 506eam:Ap I' 600licati9qn"Dave lo@pjgo p'tAic  
t2@eCommon code/ \*Detailed design -Test planningcomponent design & \*Media  
**content** design \*Test executionconstruction -Coding oSIR\*Technical standards  
\*Usability Wanagementdesign/ documentation \*Security \*Security@Code/component -  
Component testingreuse coordination oAssembly testing\*Security eSIR resolution...  
...Procurement Inagement13561362 13641360Figure 131400 1414 1416 14021406 1408

1410Security Services Network Services Internet ServiceBrow Bo 0d Web **Content**  
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 NEWSGROUPS TO WHICH USERS SUBSCRIBEOUTPUTTING ANSWERS TO  
 FREQUENTLY ASKED QUESTIONS RELATING TO THE 2206**CONTENT**-  
 RELATED WEB APPLICATION SERVICESIENABLING REAL TIME ...ITEM  
 EACH TIME A USER USES THE SYSTEM2323LOGGING THE USER'S CURRENT  
 ACTIVITIES AND ENTERING THEMINTO THE DATABASEFigure  
 23B2310DEVELOPING **CONTENT** OF A DATA INTERFACE FOR ACCESSING  
 DATA ON A 2400NETWORKMANAGING THE **CONTENT** OF THE DATA  
 INTERFACEAPPROVING THE PUBLICATION OF THE **CONTENT** BEFORE  
 TRANSMISSION OF THE 2404**CONTENT**2406TESTING THE **CONTENT** OF THE  
 DATA INTERFACE1408Figure 24GENERATING A CURRICULUM OF **COURSE**  
 OFFERINGSUALLOWING THE SELECTION OF THE **COURSE**  
 OFFERINGS2504EDUCATING USERS OVER A NETWORK2506DISPLAYING A  
 STATUS OF THE EDUCATION OF THE USERS INCLUDING AT LEASTONE OF  
 THE **COURSES** COMPLETED AND SCORES FOR THE **COURSES**  
 COMPLETED1410Figure 25ALLOWING A USER TO REVIEW EDUCATIONAL  
 PROGRAM OFFERINGS / 2510PROMPTING THE USER TO ENTER USER  
 INDICIA / 2511RECEIVING THE USER INDICIA... ...TO AT LEAST ONE OF  
 APPLICATION AND SYSTEM 2702DATA BASED ON THE USER VERIFICATION  
 DATA2704ENABLING VIRTUAL PRIVATE NETWORKINGFigure  
 271414CACHING **CONTENT** OF A NETWORK2PROVIDING APPLICATION  
 PROXY SERVICES ON THE NETWORKMANAGING RESOURCES OF THE  
 NETWORKMANAGING NETWORK OBJECTS ON THE NETWORK  
 2800CONTROLLING... ...IN THE NETWORK FRAMEWORKENABLING  
 NETWORK FRAMEWORK BROWSING IN THE NETWORK  
 FRAMEWORK/e@,,,ji OUTPUTTING ANSWERS TO FREQUENTLY ASKED  
 QUESTIONS RELATING TO THE 3006**CONTENT**-RELATED WEB APPLICATION  
 SERVICES1 300PROVIDING NEWS READER CAPABILITIES IN THE NETWORK

FRAMEWORK AFFORDING CHAT ROOM CAPABILITIES IN THE NETWORK  
 FRAMEWORK 30103012 ENABLING... ..CENTERS OVER THE NETWORK  
 FRAMEWORK 32061422 Figure 32 PROVIDING LOCATOR CAPABILITIES OVER  
 A NETWORK FRAMEWORK 3300 TRANSMITTING AT LEAST ONE OF  
 STREAMING VIDEO AND **AUDIO** DATA 3302 OVER THE NETWORK  
 FRAMEWORK 3304 LOGGING EVENTS OVER THE NETWORK  
 FRAMEWORK 3306 PASSIVELY MANAGING USER PROFILE INFORMATION  
 OVER THE NETWORK FRAMEWORK 1426 Figure...

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 DIALOG(R) File 349: PCT FULLTEXT  
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## Claims:

...NSAPI f ISA  
 Virtual Private Netw@k EmSaiel I ran:pon 11 I Me"IC V%' ZWeb Application Servic  
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 SPECIFICATIONS2204PROVIDING A PLURALITY OF NEWSGROUPS TO  
 WHICH USERS SUBSCRIBEOUTPUTTING ANSWERS TO FREQUENTLY ASKED  
 QUESTIONS RELATING TO THE 2206**CONTENT**-RELATED WEB APPLICATION  
 SERVICES220ENABLING REAL TIME COMMUNICATION BETWEEN A  
 PLURALITY OF THE USERSCOORDINATING THE TRANSMISSION OF  
 ELECTRONIC MAIL 22102212ORGANIZING RECEIVED... ..PATTERN FOR A  
 PARTICULAR TYPE OF 2322ITEM EACH TIME A USER USES THE  
 SYSTEM2323LOGGINGTHEUSER'SCURRENTACTIVITIESANDENTERINGTHEM  
 INTO THE DATABASEFigure 23B2310DEVELOPING **CONTENT** OF A DATA  
 INTERFACE FOR ACCESSING DATA ON A 2400NETWORKMANAGING THE  
**CONTENT** OF THE DATA INTERFACEAPPROVING THE PUBLICATION OF  
 THE **CONTENT** BEFORE TRANSMISSION OF THE 404**CONTENT**ITESTING THE

**CONTENT** OF THE DATA INTERFACE 24061408Figure 24GENERATING A CURRICULUM OF **COURSE** OFFERINGSALLOWING THE SELECTION OF THE **COURSE** OFFERINGS  
 EDUCATING USERS OVER A NETWORK2506DISPLAYING A STATUS OF THE EDUCATION OF THE USERS INCLUDING AT LEASTONE OF THE **COURSES** COMPLETED AND SCORES FOR THE **COURSES** COMPLETED1410Figure 25ALLOWING A USER TO REVIEW EDUCATIONAL PROGRAM OFFERINGS / ...TO AT LEAST ONE OF APPLICATION AND SYSTEM 2702DATA BASED ON THE USER VERIFICATION DATA2704ENABLING VIRTUAL PRIVATE NETWORKINGFigure 271414CACHING **CONTENT** OF A NETWORKPROVIDING APPLICATION PROXY SERVICES ON THE NETWORKMANAGING RESOURCES OF THE NETWORKI -MANAGING NETWORK OBJECTS ON THE NETWORK 2806%,"Z280... ...THE NETWORK FRAMEWORKENABLING NETWORK FRAMEWORK BROWSING IN THE NETWORK FRAMEWORK/e@s,,jI OUTPUTTING ANSWERS TO FREQUENTLY ASKED QUESTIONS RELATING TO THE 3006**CONTENT**-RELATED WEB APPLICATION SERVICES300PROVIDING NEWS READER CAPABILITIES IN THE NETWORK FRAMEWORKIAFFORDING CHAT ROOM CAPABILITIES IN THE NETWORK FRAMEWORK 3010ENABLING PLAYBACK... ...CENTERS OVER THE NETWORK FRAMEWORK 32061422 Figure 32PROVIDING LOCATOR CAPABILITIES OVER A NETWORK FRAMEWORK 3300TRANSMITTING AT LEAST ONE OF STREAMING VIDEO AND **AUDIO** DATA 3302OVER THE NETWORK FRAMEWORK3304LOGGING EVENTS OVER THE NETWORK FRAMEWORK3306PASSIVELY MANAGING USER PROFILE INFORMATION OVER THENETWORK FRAMEWORK1426 Figure...

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 DIALOG(R)File 349: PCT FULLTEXT  
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### Detailed Description:

...of software and a user of the software;

Figure 21A is an illustration of one embodiment of the present invention for automatically generating a contract **between** an owner of software and a user of the 6

software

Figure 22 is a flowchart illustrating the **content** channels-related web application services in accordance with one embodiment of the present invention;

Figure 23 is a flowchart illustrating the customer relationship management-related... ...the

customer to relationship management-related web application services in accordance with one

embodiment of the present invention;

Figure 24 is a flowchart illustrating the **content** management and publishing-related web application services in accordance with one embodiment of the present invention; Figure 25 is a flowchart illustrating the education-related... ..in order to make a point or for sales purposes. In the present description, the details of the presentation aspects will first be set forth **after** which details relating to a specific web architecture framework of the present invention will be described.

As shown in Figure 1A, the presentation method of...various activities over the Internet.

Such components may include: an electronic commerce component, a content channels component, an administrative component, a customer relationship management component, a **content** management and publishing services component, an education related services component, and a web customer service component. More detail about these and other components is provided...and PeopleSoft. Business partners deliver other 3rd party

PACs that can be purchased from partners directly.

17

fm

E

Internet Mail A family of **Internet** mail server products that securely handles mail messages in a variety of formats. SIMS also provides a secure Server (SIMS) Java Administration Console for centralized...commerce.

-

-WMIMN

23

M111

A suite of pre-built applications that run on Business2's Application Server. These applications include buying, selling, merchandising, and delivering **content** over the Internet.

Product I ECProduct I - Software for the integration of eCommerce applications with legacy systems. It provides for the sending, receiving, and encrypted transmission... ..PublishingProduct I - An application that

utilizes both passive and active customer profiling capabilities to create targeted advertising, and to deliver personalized information for superior customer service. **Content** management tools are combined with application development tools to allow to host and deploy multiple sites.

MerchantProduct I - An online business-to

consumer merchandising solution that Customization  
Business2 Business Customization Kit  
enables Internet service providers, Internet **content** providers,  
hardware OEMs, and others to create customized versions of  
Product2.

Business2 Mission Control Desktop - cross  
platform administration tools to configure, deploy, centrally  
manage... ..scale web sites. Business2 Enterprise Server  
includes a built-in search engine and supports standard security and  
authentication. The integrated LiveWire Pro software also adds  
**content** management, data **access**, and session management  
capabilities.

Business2 also offers FastTrack Server - an entry-level  
server with limited functionality.

Business2 A middleware infrastructure that supports the development... ..Software  
Developer's Kit provides application  
programming interfaces that enable developers to directory-enable  
their applications.

Business2 Proxy A system for caching and filtering web **content**, log analysis, I.Rprvor  
and boosting network performance.

BussineW Calenda A calendar server that supports the scheduling of meetings,  
appointments, and resources for thousands of users.

Server  
25

Ch A newsgroup server that provides collaboration services  
I

through discussion groups. Business2 Chat Server also supports the  
moderation of **content** and administration of discussion groups.

Bussiness2 An email server that delivers messages with embedded sound,  
Messaging Server graphics, video files, HTML forms, Java applets, and... ..capabilities  
to help administrators  
gather and organize enterprise resources scattered across intranets  
so that users can find and retrieve information more efficiently.

Media Server - An **audio** publishing, broadcasting,  
and receiving system that enables the creation and delivery of  
media-rich information, both inside and outside the enterprise.

Media server includes four components.

Media Server - play real-time **audio** feeds, provide on-demand access to pre-recorded **audio** clips, and synchronize **audio** with HTML documents, Java applets, and JavaScript applications.

Media Proxy Server - a transparent intermediary between Media Player and Media Servers which provides safe passage through the firewall for **audio** connections and operates as a reverse-proxy outside a firewall.

Media Converter - compresses and converts different **audio** formats.

Media Player - a plug-in needed to access **audio** files or a live feed from a Media Server.

1.4

27

. 5 Business3 ([www.business3.com](http://www.business3.com))

Business3 primarily provides Internet services for web users...platform-independent Java applets." Java applets are small, specialized applications that comply with Sun's Java Application Programming Interface (API) allowing developers to add "interactive **content**" to Web documents (e.g., simple animations, page adornments, basic games, etc.). Applets execute within a Java-compatible browser (e.g., Netscape Navigator) by copying... Another technology that provides similar function to JAVA is provided by Microsoft and ActiveX Technologies, to give developers and Web designers wherewithal to build dynamic **content** for the Internet and personal computers. ActiveX includes tools for developing animation, 3-D virtual reality, video and other multimedia **content**. The tools use Internet standards, work on multiple platforms, and are being supported by over 100 companies. The group's building blocks are called ActiveX...s responsibility to ensure consistency across all these formats.

The responsibilities of the Information Management team therefore cover.

Repository Management

Folder Management

Object Management

Media **Content** Management

Information and data reuse coordination

In addition to managing the information for the System Building team, the Information Management team must also manage team is required)

Media **Content** Management

The methods of handling media **content** are somewhat different from those surrounding more traditional development **content** such as code or documentation, for

this reason, a role should be defined that is responsible for the management of all media **content**.

#### Quality Management

The Quality team is responsible for defining and implementing the Quality Management Approach, which means defining what Quality means for the Program Leadership... ..and so forth.

As systems become more user-facing, important new roles are emerging that must be integrated into the Application Development teams.

#### a) Media **Content** Design

For any system with a user-facing component, it is extremely important that media and design specialists are involved as team members at an...and attractive user interfaces, but also reduces the risk of further alteration to work at a later stage.

44

#### b) Usability

Often coupled with Media **Content** Design, it is vital that a role for usability is defined within the Application Development teams. This will ensure the usability of the system from...202)

A vast amount of information is generated within the development environment, which needs to be carefully managed (for example, design documentation, application code, media **content**, test plans and test data). Information Management generally involves 1 5 Repository Management, Folder Management and, where applicable, Object Management and Media **Content** Management.

Since a number of teams rely on the service provided by the information management team, it is important that the level of service to...Security Maintenance

Validation and mass change

Analysis, reporting, and querying

Security

Restricted access to various repository object types is necessary to ensure high quality repository **content**, because developers sometimes take shortcuts and make unauthorized changes to meet their deadlines. When standards have been set, a good way to enforce them is...and the kinds of contents it should hold.

0 Perform regular clean-up, by backing up redundant or misplaced files and then removing them.

#### Media **Content** Management (106)

The unique nature of media **content** means that it cannot be treated in the same way as 'standard' formats, such as source code or design documentation. The major differentiating factors are... ..e. it is not easy to 'look into' a media file and understand its contents). For this reason, some of the processes that support multimedia **content**

management must be handled differently.

The three major processes that are required to support media **content** management are.

Storage management

0 Metadata management

Version control

Storage Management

Storage management concerns the methods of storing and retrieving media **content**.

The cost of data storage may be decreasing, but it is still the case that for large volumes of media it is often uneconomical to... ..hard disk)

Near-line(delayedaccess,forexample,CD-ROMjukebox)

0 Off-line (manual access, for example, CDs or tapes on shelves)

When deciding on where media **content** should be stored, there is always a tradeoff between accessibility and cost (on-line storage being the most accessible and most

53

expensive, and off... ..accessibility requirements.

Metadata Management

Data about the media that is being stored is an important commodity that must be managed. As the volume of media **content** grows, it is vital to be able to understand characteristics of the media, in order to be able to manage it correctly. Examples of metadata... ..0 Media type (for example, MPEG video, JPEG image)

0 Media settings (for example, sample rate, resolution, compression attributes)

Usage details (which module uses the **content**)

Media source (for example, Source, author, creation date)

Legal information (for example, whether the media is copyrighted)

Version Control

As with standard development code, when media **content** is created and edited, a revision history of changes should be retained. This way, if it is necessary to revert to an original piece of media **content**, it is not necessary to go all the way back to the original source (which in the case of finding an image in a CD... ..storing the original and final copies of media (especially where volume is an issue). For this reason, a process for managing multiple versions of media **content** must be put into place.

The more advanced media **content** management tools may provide much of the functionality required to support these processes, but where this is not the case, the processes must be implemented manually.

c) Legal Issue Management

When dealing with media, it is often the case that **content** may be subject to copyright laws. It is important that the legal implications surrounding all **content** in the system is understood, and where necessary, royalties paid to the appropriate parties.

## Object Management (108)

Object Management processes are very similar to those...The coordination of products that contribute to a release

The coordination of products that contribute to a release is the maintenance of a bill of **materials** for a release. It is an inventory of all software and hardware components that are related to a given release. The development environment is directly...Help Desk tool. This can be achieved, for example, by adding a smart word search capability on top of the Help Desk history database.

Comprehensive **training** must be given to Help Desk personnel in order to ensure the best possible level of service to the developers.

In addition to serving internal... ..team understands the key performance indicators for service delivery, that these indicators are monitored, and that all personnel are adequately equipped with the tools and **training** to fill their responsibilities.

While the entire team is responsible for delivering quality, the responsibility for Quality management should be assigned to a specific individual...the development of richer user interfaces, so the design processes must adapt to reflect these new technologies. The processes that surround the design of media **content** are similar to that of regular system design, and many of the same issues that apply to designing traditional user interfaces also apply to the design of media **content**. The major change is the involvement of media **content** designers - a group of people not traditionally associated with system design and development. As their presence is relatively new to the scene of systems development, it is often the case that media **content** designers are not fully integrated into the development team - a potentially costly mistake. It is important to ensure that media **content** designers are involved in the design process at a very early stage, and that they are fully integrated into the application design and construction teams... ..allow the development of not only media-rich interfaces, but also the functionality that lies behind them. This means that the role of the media **content** designer may now range from that of designing the look and feel of a user interface, to developing the entire presentation layer of an application. In... ..is implemented. This communication should involve all the parties involved in the design of the system, and is usually conducted in the form of an **audio** conference. Through this process, it must be ensured that all parties are approaching problems from the same direction, and that they are

75

thinking about...Considerations

a) How secure does the development environment need to be?

In environments where security is a factor, the way in which team members gain **access** to the Internet must be carefully considered. For example, on high security projects, it is often the case that isolated machines with a single dial-up connection provide the only way to **access** the Internet, thus ensuring that the development environment remains completely isolated.

b) Are people using the Internet for its intended use?

Studies have shown that employees... ..communication by e-mail alone is not a sufficient

substitute for meetings when attempting to coordinate the teams involved. In order to keep all teams **updated** and moving in the same direction, regular (for example, weekly) conference calls between all

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parties - chaired by project management - is much more efficient. It... ..agenda is closely followed. Action points and commitments made during these calls must also be documented. Where issues arise that cannot be resolved using an **audio** conference (usually because the subject is based on a visual concept), video conferencing may be necessary.

#### E-Mail (138)

E-mail provides the capability of... ..binary files to messages, E-mail is a convenient tool for distributing information to a group of people, as it has the advantage of delivering **content** directly to the 'mailbox' of each individual, rather than relying on individuals to access a central data repository in order to retrieve the information.

#### Implementation Considerations

a) Is e- mail likely to contain sensitive information?

When setting up an e-mail system, it is important to consider the **content** that will be transferred using the system and to apply the appropriate security controls accordingly.

Is communication outside the local environment necessary?

Is remote access...the project team?

Teamware will generally only be effective when used within large groups of people.

Unless a critical mass of people is achieved and **content** is regularly added to the system, interest will soon dwindle, and the system will no longer be of any value.

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#### Group Scheduling (142)

Group... ..each member of the group must always be current. This is the responsibility not only of the group scheduler, but also of the individuals involved.

#### **Audio** / Video Conference (144)

In an ideal world, all meetings would be conducted face to face. In reality, however, it is often the case that not all the individuals who are required to take part in a meeting are on the same site. To overcome this problem, **audio** and video conferencing tools allow many individuals in different locations to communicate simultaneously. **Audio** conferencing is not a new concept, but remains a valuable tool for conducting meetings where the issues being discussed do not require the support of... ..a much richer method of communication.

#### Implementation Considerations

a) Is there enough bandwidth to support a video conferencing system?

Adding bandwidth intensive applications such as **audio**, video, and data conferencing could have severe effects on the network infrastructure and this must be anticipated. This type of implementation is also based on...fraudulent credit card

transactions.

" Mobile code security - protects corporate resources, computer files, confidential information, and corporate assets from possible mobile code attack.

'O E-mail **content** filtering - allows organizations to define and enforce e15 mail policies to ensure the appropriate. email **content**.

Application development security toolkits - allow programmers to integrate:privacy, authentication, and additional security features into applications by using a cryptography engine and toolkit.

" Encryption - provides... ..location of access, successful and unsuccessful access or change attempts, etc.

c) What are the performance implications of the tool?

Some security services, such as **content** scanning or auditing, may add noticeable processing time and requirements to the system. Tools should be architected in such a way that performance impacts are...broad reuse. A facility for security is required to prevent unauthorized changes to the repository elements and hence to ensure high quality and consistent repository **content**. For example, restrictions are often placed on making changes to data elements because ad-hoc changes by a single designer could have devastating impacts on...and one lower-case repository. Bridges between these repositories are key. Quality of import/export capabilities of the various repositories are key.

In many instances, **content** may not be stored directly in the repository and must be placed in storage. In this case, only a reference is stored in the repository... ..or by integrating point tools around a common repository.

In addition to the repository, which plays a key role, other important tool categories include the **following**.

k) Security

Repository **access** can sometimes be controlled using an **access** control function, which comes with the repository. A common technique is to group users and assign different access rights to the different groups. Each of...several folders

Migration between folders

Nested folders

Links to avoid duplication of components while still showing that a component belongs to several folders

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Media **Content** Managernen (106)

Methods for storing and managing media **content** range from simple folder management techniques to multimedia digital asset management systems, capable of indexing and manipulating numerous multimedia data types. There are a number of key

requirements for Media **Content** Management - in particular, a Media **Content** Management system should have the ability to.

Manage multiple file formats

Efficiently store high volume files

Manage metadata on files within the system

Manage multiple... manual processes implemented by the Information Management team depends on the richness of functionality provided by the tools chosen.

Additional functionality provided by advanced Media **Content** Management tools may include.

Intelligent indexing of media types (allowing specialized search facilities)

Capabilities for browsing media **content** (low-res images, previews)

High performance proprietary file systems (both in terms of speed and volume)

Implementation Considerations

a) What formats need to be supported?

The method of Media **Content** Management depends heavily on what media is to be stored. Ensure that the target media formats are understood before implementing the Media **Content** Management approach.

b) Where should media **content** be stored?

Where to store media **content** greatly depends on the volume of media to be stored, and the performance requirements for retrieving that data. One thing is certain however; when dealing... whether the expected gain was actually achieved.

TraiaLng (154)

Training tools provide methods to apply a standardized training approach to a large group of people. **Training** tools can complement or take the place of traditional instructor-led **training** depending on the type of information that must be communicated.

Computer-Based Training (CBT) tools offer the advantage of being able to train personnel directly on the target environment.

At the more basic level, **training** tools can also include **online** or paper-based **training materials** - not offering all the advantages of CBTs, but still providing the flexibility and convenience because they can be conducted as and when the trainee requires, and in any location. This removes the need to organize classes.

The decision of whether to use CBT, **online**, paper-based or instructor-led **training** is affected by the number of people that have to be trained, the complexity of the subject, and the availability and distribution of the people to be **trained**.

Program & Project Management (214)

Program and Project Management tools assist the management teams in their daily work. These tools, typically packaged as integrated suites of...e) Is there a large number of

components?

It may be necessary to keep track of and control configurations consisting of objects such as training **materials**, documentation, hardware components, system software and even building characteristics. The existence of a large number of such components makes the task of managing their configurations...b) Is the system complex?

Change control has broader applicability than to just application source code. It may also affect the look and feel, training **materials**, documentation, and so forth. Change Control must be formalized if the system is complex with many components.

c) Do changes need to be authorized by...e) Is the system complex (consisting of more than 1000 components)?

The task of promoting components and locking these components to prevent concurrent or unauthorized **updates** to them or their dependents becomes, very intricate as the number of components reaches 1000. Migration control tools can be used to improve productivity by... ..anticipated. The large volumes of complex data generally require automation of backups and restores.

The advent of Netcentric technologies has introduced an increase in media **content** that requires storage. The environment may support a high volume of media files, which must be ...location of access, successful and unsuccessful access or change attempts, etc.

c) What are the performance implications of the tool?

Some security services, such as **content** scanning or auditing, may add noticeable processing time and requirements to the system. Tools should be architected in such a way that performance impacts are...dedicated performance modeling tools should be considered on any project with high transaction volumes or complex distributed architectures involving several platforms.

In the case of **Internet**-based applications, as the Internet is not a controlled environment, performance modeling is limited to those components within the domain of the controlled environment (i...to the interface. Problems the users may have in working with the interface can be identified early on, and can be accounted for in training **materials** that are developed.

p) Is there a high degree of innovation in the workflow?

Prototyping allows the developers to experiment and, with input from users...of environment therefore entails the generation of HTNIL pages, often with additional components (JavaScript, 3rd party ActiveX controls, Plug-ins) providing enhanced functionality or media **content**. Many tools are currently available for designing and creating web **content**, although HTML remains the common denominator, at the very least as a placeholder for the **content**.

In the case of systems published on the Internet, defining the target audience is less straightforward than in traditional systems, but equally important. Having a...of wrapping an object/code. As objects/code become more complex, with more functions/interfaces, then the value of wrapping them becomes more tangible.

## Media **Content** Creation

As systems become increasingly user-facing, it is important to design user interfaces that are not only functional, but also engaging and informative. This... ..evolution of media-rich applications, the development of which requires new tools and processes, and brings with it a whole new set of issues.

Media **content** can be broken down into three major media types, each with its own set of tools.

### 213/31) Images/Animation

#### Video

#### **Audio**

#### 2D/3D Images/Animation

Tools to handle these images range from simple paint packages to highly complex multi-layered animation graphics packages. The images created by these... ..use of high-quality textured images, or highly colored images is important, but where file storage and transmission is not an issue (where the media **content** is local to the client application,

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such as in a kiosk).

Vector-based tools (where the image is defined by formulae rather than pixel... ..process of video production mean that it is usually outsourced to a third party. It is important however that the personnel charged with creating video **content** are an integral part of the Application team.

#### **Audio**

The tools required for creating **audio content** depend on the quality required, and whether or not the **content** is original. For 'sound bites' or pre-recorded **audio**, simple desktop **audio** editing applications are adequate. For high-quality original **content**, a 1 5 professional recording studio is recommended. Again, if third parties are involved, it is important that they are fully integrated into the team.

For both image and **audio**, it is possible to purchase re-usable **content** from agencies, usually delivered in the form of CD-ROMs.

NOTE: Tools required to store and manage media **content** (and storage formats) are discussed in Tools - Information Management - Media **Content** Management

#### Test (136)

Testing applications (client/server or Netcentric) remains a complex task because of the large number of integrated components involved (for example, multiplatform...this document, there is no guarantee that that information is still accurate, or that the vendor is still in business. It is imperative that the **following** actions are taken when choosing a tool-based solution.

determine that the vendor is still a viable candidate (i.e. still in business, good

recent... ..function. This section presents the generic key design questions. Key design decisions that relate specifically to a function are presented in 166

each of the **subsequent** functional grouping chapters.

The **following** generic decisions impact need for specific components.

When and how frequently, does the function need to be performed?

The timing and frequency of each function may have... ..systems is necessary, hooks may need to be built into both the existing and new systems.

What are the data sharing requirements with other functions?

Integration **between** functions will either require a tool capable of supporting both functions, or hooks **between** tools.

What are the expected data / transaction volumes, and how much historical data will be required?

Volumes of data, both real-time and historical, will...as a background task, freeing up system resources for use on-line.

Will review before print facilities be provided?

If these facilities will be provided, all **material** will not need to be printed. If the **material** does need to be print; however, the location of the printing must be determined, and the system must be able to forward the printing on... ..what order will hardware and software components be started I shutdown? Based upon the technical requirements of the system (e.g., databases should be started **before** applications) as well as defined service levels (e.g., one particular application is critical and must be started first), the order of startup / shutdown will...

## Claims:

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 mechanism to communicate with external system El Supports page rendering for multiple  
 languages that provide additional **content** such arr catalog information m Supports  
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 21A2108DOWNLOADING DATA2202TRANSMITTING DATA BASED ON USER  
 SPECIFICATIONS220PROVIDING A PLURALITY OF NEWSGROUPS TO WHICH  
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 PLURALITY OF THE USERSCOORDINATING THE TRANSMISSION OF  
 ELECTRONIC MAIL 22102212ORGANIZING RECEIVED... ..ITEM EACH TIME A  
 USER USES THE SYSTEM2323LOGGING THE USER'S CURRENT ACTIVITIES  
 AND ENTERING THEMINTO THE DATABASEFigure 23B2310DEVELOPING  
**CONTENT** OF A DATA INTERACE FOR ACCESSING DATA ON  
 ANETWORKMANAGING THE **CONTENT** OF THE DATA  
 INTERFACEAPPROVING THE PUBLICATION OF THE **CONTENT** BEFORE  
 TRANSMISSION OF THE**CONTENT**TESTING THE **CONTENT** OF THE DATA  
 INTERFACE 24061408Figure 24GENERATING A CURRICULUM OF **COURSE**  
 OFFERINGSb02ALLOWING THE SELECTION OF THE **COURSE**  
 OFFERINGS504EDUCATING USERS OVER A NETWORKI 2506DISPLAYING A  
 STATUS OF THE EDUCATION OF THE USERS INCLUDING AT LEASTONE OF  
 THE **COURSES** COMPLETED AND SCORES FOR THE **COURSES**  
 COMPLETED1410Figure 25ALLOWING A USER TO REVIEW EDUCATIONAL  
 PROGRAM OFFERINGS / 2510PROMPTING THE USER TO ENTER USER  
 INDICIA / 2511RECEIVING THE USER INDICIA...AT LEAST ONE OF  
 APPLICATION AND SYSTEM 2702DATA BASED ON THE USER VERIFICATION  
 DATAENABLING VIRTUAL PRIVATE NETWORKING 2704Figure  
 271414@800CACHING **CONTENT** OF A NETWORK2802PROVIDING  
 APPLICATION PROXY SERVICES ON THE NETWORK2 04MANAGING  
 RESOURCES OF THE NETWORKIMANAGING NETWORK OBJECTS ON THE  
 NETWORK... ..MAIL CAPABILITIES IN THE NETWORK  
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 ASKED QUESTIONS RELATING TO THE 3006**CONTENT**-RELATED WEB  
 APPLICATION SERVICES300PROVIDING NEWS READER CAPABILITIES IN  
 THE NETWORK FRAMEWORKAFFORDING CHAT ROOM CAPABILITIES IN  
 THE NETWORK FRAMEWORK 30103012ENABLING PLAYBACK... ..CALL  
 CENTERS OVER THE NETWORK FRAMEWORK1422 Figure 32PROVIDING  
 LOCATOR CAPABILITIES OVER A NETWORK FRAMEWORK  
 3300TRANSMITTING AT LEAST ONE OF STREAMING VIDEO AND **AUDIO**  
 DATA 3302OVER THE NETWORK FRAMEWORKLOGGING EVENTS OVER THE  
 NETWORK FRAMEWORK 33043306PASSIVELY MANAGING USER PROFILE  
 INFORMATION OVER THENETWORK FRAMEWORK1426 Figure...

Country	Number	Kind	Date
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### Detailed Description:

...present invention for automatically generating a contract between an owner of software and a user of the software

Figure 22 is a flowchart illustrating the **content** channels-related web application services in accordance with one embodiment of the present invention;

Figure 23 is a flowchart illustrating the customer relationship management-related... ..of the customer relationship management-related web application services in accordance with one

embodiment of the present invention;

Figure 24 is a flowchart illustrating the **content** management and publishing-related web application services in accordance with one embodiment of the present invention; Figure 25 is a flowchart illustrating the education-related... ..Figure 28 is a flowchart illustrating the network services in accordance with one

embodiment of the present invention;

Figure 29 is a flowchart illustrating the **internet** services in accordance with one embodiment of the present invention;

Figure 30 is a flowchart illustrating the client services in accordance with one embodiment of...various activities over the Internet.

Such components may include: an electronic commerce component, acontent channels component, an administrative component, a customer relationship management component, a **content** management and publishing services component, an education related services component, and a web customer service component. More detail about these and other components is provided...checks.

Product4 Produjt A range of security-based hardware and software that offers 1.9 packet filtering, encryption, security administration, virtual private Suite network and **access** restriction. The Product4 Product Suite includes the **following** components.

Product4 Secure Net -- a complete set of products designed to establish perimeter defense, secure intranets, secure remote **access**, and secure extranets including the **following**.

Product4 EFS - firewall and security server software that screens network traffic as defined by the organization's security policy. It also acts as a high...as electronic commerce.

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@ @

A suite of pre-built applications that run on Business2's Application Server. These applications include buying, selling, merchandising, and delivering **content** over the Internet.

Product1 ECProduct1 - Software for the integration of eCommerce applications with legacy systems. It provides for the sending, receiving, and encrypted transmission of... ...PublishingProduct1 - An application that utilizes both passive and active customer profiling capabilities to create targeted advertising, and to deliver personalized information for superior customer service. **Content** management tools are combined with application development tools to allow to host and deploy multiple sites.

MerchantProduct1 - An online business-to consumer merchandising solution that... ...in a group.

Calendar - delivers group scheduling based on a scalable real-time architecture.

Browser Customization

Business2 Business Customization Kit enables Internet service providers, Internet **content** providers, hardware OEMs, and others to create customized versions of Product2.

Business2 Mission Control Desktop - cross platform administration tools to configure, deploy, centrally manage, and... ...scale web sites. Business2 Enterprise Server includes a built-in search engine and supports standard security and authentication. The integrated LiveWire Pro software also adds **content** management, data access, and session management capabilities.

Business2 also offers FastTrack Server - an entry-level enterprise server with limited functionality.

Business2 A middleware infrastructure that... ...Software Developer's Kit provides application programming interfaces that enable developers to directory-enable

their applications.

Business2 P A system for caching and filtering web **content**, log analysis, 1, Rprvpr tl and boosting network performance.

Bussiness2 Calenda A calendar server that supports the scheduling of meetings, appointments, and resources for thousands of users.

Server

26

Chat A newsgroup server that provides collaboration services through discussion groups. Business2 Chat Server also supports the moderation of **content** and administration of discussion groups.

Bussiness2 An email server that delivers messages with embedded sound, Messaging Server graphics, video files, HTML forms, Java applets, and...capabilities to help administrators gather and organize enterprise resources scattered across intranets so that users can find and retrieve information more efficiently.

Media Server - An **audio** publishing, broadcasting, and receiving system that enables the creation and delivery of media-rich information, both inside and outside the enterprise.

Media server includes four components.

Media Server - play real-time **audio** feeds, provide on-demand access to pre-recorded **audio** clips, and synchronize **audio** with HTML documents, Java applets, and JavaScript applications.

Media Proxy Server - a transparent intermediary between Media Player and Media Servers which provides safe passage through the firewall for **audio** connections and operates as a reverse-proxy outside a firewall.

Media Converter - compresses and converts different **audio** formats.

Media Player - a plug-in needed to access **audio** files or a live feed from a Media Server.

1.4

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. 5 BusinesO ([www. business3. com](http://www.business3.com))

Business3 primarily provides Internet services for web users...platform-independent Java applets." Java applets are small, specialized applications that comply with Sun's Java Application Programming Interface (API) allowing developers to add "interactive **content**" to Web documents (e.g., simple animations, page adornments, basic games, etc.). Applets execute within a Java-compatible browser (e.g., Netscape Navigator) by copying... ...Another technology that provides similar function to JAVA is provided by Microsoft and ActiveX Technologies, to give developers and Web designers wherewithal to build dynamic **content** for the Internet and personal computers. ActiveX includes tools for developing animation, 3-D virtual reality, video and other multimedia **content**. The tools use Internet standards, work on multiple platforms, and are being supported by over 100 companies. The group's building blocks are called...responsibility to ensure consistency across all these formats.

The responsibilities of the Information Management team therefore cover.

Repository Management

Folder Management

Object Management

0 Media **Content** Management

Information and data reuse coordination

In addition to managing the information for the System Building team, the Information Management team must also manage... ...designs

0 Packaging classes and components for reuse

Managing maintenance and upgrades of common components (a strong relationship with Configuration Management team is required)

Media **Content** Management

The methods of handling media **content** are somewhat different from those surrounding more traditional development **content** such as code or documentation, for this reason, a role should be defined that is responsible for the management of all media **content**.

Quality Management

The Quality team is responsible for defining and implementing the Quality Management Approach, which means defining what Quality means for the Program Leadership...and so forth.

As systems become more user-facing, important new roles are emerging that must be integrated into the Application Development teams.

a) Media **Content** Design

For any system with a user-facing component, it is extremely important that media and design specialists are involved as team members at an... ...creative and attractive user interfaces, but also reduces the risk of further alteration to work at a later stage.

b) Usability

Often coupled with Media **Content** Design, it is vital that a role for usability is defined

within the Application Development teams. This will ensure the usability of the system from... ..Security infrastructure development

Note: The responsibilities of the Technology Infrastructure team may overlap with those of the Application Architecture team, and on some projects the **two** teams are often combined.

## DEVELOPMENT PROCESSES FRAMEWORK

A thorough understanding of the development processes is a prerequisite for ensuring that the tools effectively support the...202)

A vast amount of information is generated within the development environment, which needs to be carefully managed (for example, design documentation, application code, media **content**, test plans and test data). Information Management generally involves Repository Management, Folder Management and, where applicable, Object Management and Media **Content** Management.

Since a number of teams rely on the service provided by the information management team, it is important that the level of service to... ..Security Maintenance

Validation and mass change

Analysis, reporting, and querying

Security

Restricted access to various repository object types is necessary to ensure high quality repository **content**, because developers sometimes take shortcuts and make unauthorized changes to meet their deadlines. When standards have been set, a good way to enforce them is...folder and the kinds of contents it should hold.

" Perform regular clean-up, by backing up redundant or misplaced files and then removing them.

## Media **Content** Management (106)

The unique nature of media **content** means that it cannot be treated in the same way as 'standard' formats, such as source code or design documentation. The major differentiating factors are... ..e. it is not easy to 'look into' a media file and understand its contents). For this reason, some of the processes that support multimedia **content** management must be handled differently.

The three major processes that are required to support media **content** management are.

Storage management

Metadata management

Version control

Storage Management

Storage management concerns the methods of storing and retrieving media **content**.

The cost of data storage may be decreasing, but it is still the case that for large volumes of media it is often uneconomical to line (manual access, for example, CDs or tapes on

shelves)

When deciding on where media **content** should be stored, there is always a tradeoff between accessibility and cost (on-line storage being the most accessible and most expensive, and off-line... ..accessibility requirements.

#### Metadata Management

Data about the media that is being stored is an important commodity that must be managed. As the volume of media **content** grows, it is vital to be able to understand

54 characteristics of the media, in order to be able to manage it correctly. Examples of metadata include.

Media type (for example, MPEG video, JPEG image)

Media settings (for example, sample rate, resolution, compression attributes)

Usage details (which module uses the **content**)

Media source (for example, Source, author, creation date)

Legal information (for example, whether the media is copyrighted)

#### Version Control

As with standard development code, when media **content** is created and edited, a revision history of changes should be retained. This way, if it is necessary to revert to an original piece of media **content**, it is not necessary to go all the way back to the original source (which in the case of finding an image in a CD... ..storing the original and final copies of media (especially where volume is an issue), For this reason, a process for managing multiple versions of media **content** must be put into place.

The more advanced media **content** management tools may provide much of the functionality required to support these processes, but where this is not the case, the processes must be implemented manually.

#### c) Legal Issue Management

When dealing with media, it is often the case that **content** may be subject to copyright laws. It is important that the legal implications surrounding all **content** in the system is understood, and where necessary, royalties paid to the appropriate parties.

#### Object Management (108)

Object Management processes are very similar to those...The coordination of products that contribute to a release

The coordination of products that contribute to a release is the maintenance of a bill of **materials** for a release. It is an inventory of all software and hardware components that are related to a given release. The development environment is directly...the development of richer user interfaces, so the design processes must adapt to reflect these new technologies. The processes that surround the design of media **content** are similar to that of regular system design, and many of the same issues that apply to designing traditional user interfaces also apply to the design of media **content**. The major change is the involvement of media **content** designers - a group of people not traditionally associated

with system design and development. As their presence is relatively new to the scene of systems development, it is often the case that media **content** designers are not fully integrated into the development team - a potentially costly mistake. It is important to ensure that media **content** designers are involved in the design process at a very early stage, and that they are fully integrated into the application design and construction teams... ..allow the development of not only media-rich interfaces, but also the functionality that lies behind them. This means that the role of the media **content** designer may now range from that of designing the look and feel of a user interface, to developing the entire presentation layer of an application... ..is implemented. This communication should involve all the parties involved in the design of the system, and is usually conducted in the form of an **audio** conference. Through this process, it must be ensured that all parties are approaching problems from the same direction, and that they are thinking about the...packaged as integrated suites of software, provide the basic functionality required to create documents, spreadsheets, and simple graphics or diagrams. More recently, the ability to **access** the Internet and browse electronic documentation has been added to the suite of productivity tools.

Specifically, productivity tools include.

0 Spreadsheet

\* Word Processor

Graphics Editor... ..agenda is closely followed. Action points and commitments made during these calls must also be documented. Where issues arise that cannot be resolved using an **audio** conference (usually because the subject is based on a visual concept), video conferencing may be necessary.

E-Mail (138)

E-mail provides the capability of... ..binary files to messages. E-mail is a convenient tool for distributing information to a group of people, as it has the advantage of delivering **content** directly to the 'mailbox' of each individual, rather than relying on individuals to access a central data repository in order to retrieve the information.

Implementation Considerations

a) Is e- mail likely to contain sensitive information?

When setting up an e-mail system, it is important to consider the **content** that will be transferred using the system and to apply the appropriate security controls accordingly.

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Is communication outside the local environment necessary?

Is remote...the project team?

Teamware will generally only be effective when used within large groups of people.

Unless a critical mass of people is achieved and **content** is regularly added to the system, interest will soon dwindle, and the system will no longer be of any value.

Group Scheduling (142)

Group scheduling... ..each member of the group must always be current. This is the

responsibility not only of the group scheduler, but also of the individuals involved.

#### **Audio / Video Conference (144)**

In an ideal world, all meetings would be conducted face to face. In reality, however, it is often the case that not all the individuals who are required to take part in a meeting are on the same site. To overcome this problem, **audio** and video conferencing tools allow many individuals in different locations to communicate simultaneously. **Audio** conferencing is not a new concept, but remains a valuable tool for conducting meetings where the issues being discussed do not require the support of... ..much richer method of communication.

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#### **Implementation Considerations**

a) Is there enough bandwidth to support a video conferencing system?

Adding bandwidth intensive applications such as **audio**, video, and data conferencing could have severe effects on the network infrastructure and this must be anticipated. This type of implementation is also based on...fraudulent credit card transactions.

4' Mobile code security - protects corporate resources, computer files, confidential information, and corporate assets from possible mobile code attack.

" E-mail **content** filtering - allows organizations to define and enforce email policies to ensure the appropriate email **content**.

0 Application development security toolkits - allow programmers to integrate privacy, authentication, and additional security features into applications by using a cryptography engine and toolkit.

9... ..location of access, successful and unsuccessful access or change attempts, etc.

c) What are the performance implications of the tool?

Some security services, such as **content** scanning or auditing, may add noticeable processing time and requirements to the system. Tools should be architected in such a way that performance impacts are...broad reuse. A facility for security is required to prevent unauthorized changes to the repository elements and hence to ensure high quality and consistent repository **content**. For example, restrictions are often placed on making changes to data elements because ad-hoc changes by a single designer could have devastating impacts on...and one lower-case repository. Bridges between these repositories are key. Quality of import/export capabilities of the various repositories are key.

In many instances, **content** may not be stored directly in the repository and must be placed in storage. In this case, only a reference is stored in the repository... ..by integrating point tools around a common repository.

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In addition to the repository, which plays a key role, other important tool categories include the **following**.

k) Security

Repository **access** can sometimes be controlled using an **access** control function, which comes with the repository. A common technique is to group users and assign different access rights to the different groups. Each of...several folders

0 Migration between folders

Nested folders

Links to avoid duplication of components while still showing that a component belongs to several folders

Media **Content** Management (106)

Methods for storing and managing media **content** range from simple folder management techniques to multimedia digital asset management systems, capable of indexing and manipulating numerous multimedia data types. There are a number of key requirements for Media **Content** Management - in particular, a Media **Content** Management system should have the ability to.

0 Manage multiple file formats

0 Efficiently store high volume files

0 Manage metadata on files within the... manual processes implemented by the Information Management team depends on the richness of functionality provided by the tools chosen.

Additional functionality provided by advanced Media **Content** Management tools may include.

Intelligent indexing of media types (allowing specialized search facilities)

Capabilities for browsing media **content** (low-res images, previews)

100

High performance proprietary file systems (both in terms of speed and volume)

Implementation Considerations

a) What formats need to be supported?

The method of Media **Content** Management depends heavily on what media is to be stored. Ensure that the target media formats are understood before implementing the Media **Content** Management approach.

b) Where should media **content** be stored?

Where to store media **content** greatly depends on the volume of media to be stored, I O and the performance requirements for retrieving that data. One thing is certain however... short delay, for example, CD j uke box), or even possibly off-line (manual intervention required).

Object Management (108)

Object Management tools provide capabilities for **viewing** objects, their methods and

attributes, and the dependencies **between** these objects.

Object Management tools also provide specific analysis tools, in order to understand interdependencies between the core classes and the components. When classes and...or client expectations fail to be met. Once the process has been modified, it is remeasured to see whether the expected gain was actually achieved.

### **Training** (154)

**Training** tools provide methods to apply a standardized training approach to a large group of people. Training tools can complement or take the place of traditional... ..be communicated. ComputerBased Training (CBT) tools offer the advantage of being able to train personnel directly on the target environment.

At the more basic level, **training** tools can also include **online** or paper-based **training materials** - not offering all the advantages of CBTs, but still providing the flexibility and convenience because they can be conducted as and when the trainee requires, and in any location. This removes the need to organize classes.

The decision of whether to use CBT, **online**, paper-based or instructor-led **training**

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is affected by the number of people that have to be trained, the complexity of the subject, and the availability and distribution of the... ..essential when development teams are not

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centralized at one location. These tools provide services, such as version control, when geographically distributed teams need to **access** common modules or data, such as code tables. Configuration Management tools may still be necessary even if the development team is centralized, depending upon other...e) Is there a large number of components?

It may be necessary to keep track of and control configurations consisting of objects such as training **materials**, documentation, hardware components, system software and even building characteristics. The existence of a large number of such components makes the task of managing their configurations...b) Is the system complex?

Change control has broader applicability than to just application source code. It may also affect the look and feel, training **materials**, documentation, and so forth. Change Control must be formalized if the system is complex with many components.

108

c) Do changes need to be authorized...a system test environment either

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involves a large number of components (migration of all the components belonging to a test cycle) or single components (**after** code fixing in a program). Either way the Migration Control tool should lock the migrated component to control changes and allow better coordination with the...anticipated. The large volumes of complex data generally require automation of backups and restores.

The advent of Netcentric technologies has introduced an increase in media **content** that requires storage. The environment may support a high volume of media files, which

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must be considered in the backup/restore plans. Storage capacity... ..location of access, successful and unsuccessful access or change attempts, etc.

c) What are the performance implications of the tool?

Some security services, such as **content** scanning or auditing, may add noticeable processing time and requirements to the system. Tools should be architected in such a way that performance impacts are...to the interface. Problems the users may have in working with the interface can be identified early on, and can be accounted for in training **materials** that are developed.

p) Is there a high degree of innovation in the workflow?

Prototyping allows the developers to experiment and, with input from users... ..and paper, etc.) in order to document initial window designs and determine dialog flow (navigation). Some advantages of low-fidelity prototyping include little or no **learning** curve, lack of standardization which increases designer creativity, and ease of modification. However, this type of prototyping can not provide the user with the look...of environment therefore entails the generation of HTML pages, often with additional components (JavaScript, 3rd party ActiveX controls, Plug-ins) providing enhanced functionality or media **content**. Many tools are currently available for designing and creating web **content**, although HTML remains the common denominator, at the very least as a placeholder for the **content**.

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In the case of systems published on the Internet, defining the target audience is less straightforward than in traditional systems, but equally important. Having...of wrapping an object/code. As objects/code become more complex, with more functions/interfaces, then the value of wrapping them becomes more tangible.

### Media **Content** Creation

As systems become increasingly user-facing, it is important to design user interfaces that are not only functional, but also engaging and informative. This... ..of media-rich applications, the development of which requires new tools and processes, and brings with it a whole new set of issues.

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Media **content** can be broken down into three major media types, each with its own set of tools.

### 2D/3D Images/Animation

#### Video

#### **Audio**

### 2D/3D Images/Animation

Tools to handle these images range from simple paint packages to highly complex multi-layered animation graphics packages. The images created by these... ..use of high-quality textured images, or highly colored images is important, but where file storage and

transmission is not an issue (where the media **content** is local to the client application, such as in a kiosk).

0 Vector-based tools (where the image is defined by formulae rather than pixel... ...process of video production mean that it is usually outsourced to a third party. It is important however that the personnel charged with creating video **content** are an integral part of the Application team.

### **Audio**

The tools required for creating **audio content** depend on the quality required, and whether or not the **content** is original. For 'sound bites' or pre-recorded **audio**, simple desktop **audio** editing applications are adequate. For high-quality original **content**, a professional recording studio is recommended. Again, if third parties are involved, it is important that they are fully integrated into the team.

For both image and **audio**, it is possible to purchase re-usable **content** from agencies, usually delivered in the form of CD-ROMs.

NOTE: Tools required to store and manage media **content** (and storage formats) are discussed in Tools - Information Management - Media **Content** Management Test (136)

Testing applications (client/server or Netcentric) remains a complex task because of the large number of integrated components involved (for example, multiplatform...production system up and running efficiently. Unlike the Execution and Development Architectures, its primary users are the system administrators and the production support personnel.

The **following** databases provide information on the Operations Architecture and list requirements and current tools solutions for the managing of the various Operations Architecture areas. All areas...as a background task, freeing up system resources for use on-line.

Will review before print facilities be provided?

If these facilities will be provided, all **material** will not need to be printed. If the **material** does need to be print; however, the location of the printing must be determined, and the system must be able to forward the printing on...

### **Claims:**

...are delivered as recited in claim 1, wherein the components of the existing system are selected from the group of components including commerce-related services, **content**-related services, administration-related services, customer-related services, and education-related services.

5 A method for displaying phases in which components of a system are... ...are delivered as recited in claim 13, wherein the components of the existing system are selected from

the group of components including commerce-related services, **content**-related services, administration-related services, customer-related services, and education-related services.

17 A system for displaying phases in which components of a system are delivered...S-@-i

JF Oift of Samet S0=8 8@Emw@ I I (ftrovwsn) I co@catbna - I C=W@ @ate NoWeb Application ServicesCominerce **Content** Channels Customer **Content** Mgrnt Education Services Web Custorner Servic aRelationship Mgfirt Publishing Servicesr -Cata C-Vaw-@W--i F-O-"\* -(P@-& --I r-&W @C..bftft... ..Services Client ServicMaL Nework O\*CtlL@tweboom F-@@alftv Cd @Smce @ ZnEnthdanaml I bandwm" @'SSL =Mw Mawo ilq;=1Web ApplicationContnterce **Content** Channels custorner **content** mornt Oducation Semloes Web Custwner SemlodRelationship Mgmt Ptiblishing Senticer--Z;;W C,,Wld.I=,n.Wogy F-Dy@kaflly Pao9tWO 1j=mtMaUw... ..ServiceObjm mornt "Tma M H17P - Page w@@,fRADIUS7) Randearig (FrP)OualftvdSwce ps@-M - 1(WAUM) I commurdoibore - ssqWeb ApplicationCommerce Coment Channels Custorner **Content** Mgmt a Education Senilces Web Custorner Sentic aRelationship Mgmt Publishing Se"IcesF-es-ft-ca-PO wal F-i-ote F@TW@Pmfilemgmt...I web F 1SR08AMD1 =US7 I RandOng (FrP)I AMI= IF -,VW -B@ -1 s 8=sSGMNS (bandwtM) commufocadmi sWeb Application ServicesCo **Content** Channefe cmtow **Content** mgmt & Education Somices Web customer Semh aRelationaMp Ugrnt PubliaNng SamloesFE@telog @Capabildms7i F-Q-W-16 (-Pdm-&----1 F-Ch-alCa-padl 3... ..NOS compatibility 0 Supports Microsoft's API (ISAPQ protocol0 Prarvides alternative to the interface mechanism that may be usedC3 Restricts access to web **content** and data based upon user privileges0 Determines If a user or gmp of users haw permission to manipulate E3 Executes web application logic web... ..note and remember one of more preceding location events in a given sequence of interactions with the user or application S me up previously cached **content** without accossing original source 13 Tracks state and session Information LI= cache mimetically to ensure integrity of **content** E3 Manages multiple Independent sessions simultaneously active0 Supports Client CookiesPasses requests from external clients to internal web servers and return results 0 Supports...communication orrars web browsers 0 Provides adapter or mechanism to communicate with external systemsCl Supports page rendering for multiple languages @W0 Supports multiple **content** sources (file system, databases, scripts) C3 that provide additional **content** such as calatog informationProvides reporting and logging functions to detect communication arromFigure 1Q'TawBusiness1-Business2-Business3 Alliance ebendCustomer Facingq Web Architecture Framework--- FLSecurity Ser Network Services Web Services riaint ServicesNW0WMWeb Application Servicesc@ **Content** Channels customw **content** Mena a Education services Web oistaner samiceRelatlanship mgmt PubilehingServIcesF-. @.,U.Q..@Mt. I markatingColateraTechnology@ F@@@IMIYFadftW@ -fiewg@,Capabildes canmurd"s of Iftwe...gaphics m a fires cre does riot %ork I wmbc@c7adft torponvlocallon 11000 Cmales an Inlegaied Rre%ell/ aUthankation 0 0 Serves up Mwu\* cached **content** Aithoul awassM 1110110 Allova rarrate authenticated access to intranstori4nal source0 0 Updates cache autorrsW\* to wom integrity of**content**Figure IYClient2 Application ServerA miMNetwiseApplicationBuilderNetscape,Applic-at'Og@ ionServe;Adr0i'MiltratorNetscape Applicatib-A ServersguilderFigure 502 504 T

506Vam@u- Q@'-A S-Common code/ \*Detailed design oTest planningcomponent  
 design & \*Media **content** design -Test executionconstruction -Coding \*SIR@Technical  
 standards \*Usability sManagementdesign/ documentation \*Security  
 SecurityeCode/component sComponent testingreuse coordination \*Assembly  
 testing\*Security \*SIR resolution... ...1360Figure 131400 1414 1416 14U21406 1408  
 1410Services Network Services Internet ServiceGrow:er Based HTTP File Transfer  
 Samicsrit I Web **Content** caching rk Object Mgmt P (FTP)Auth ication ar:ices Fob fII  
 (RADIUS) RenderingF-Web Data Application Proxy of -aam;ce ecurs Browser...  
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 0 3rd party I  
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 Aud...IDENTIFICATIONFigure 21A2108DOWNLOADING DATATRANSMITTING  
 DATA BASED ON USER SPECIFICATIONS2204PROVIDING A PLURALITY OF  
 NEWSGROUPS TO WHICH USERS  
 SUBSCRIBEIOUTPUTTINGANSWERSTOFREQUENTLYASKEDQUESTIONSREL  
 ATINGTOTHE 2206**CONTENT**-RELATED WEB APPLICATION  
 SERVICES220ENABLING REAL TIME COMMUNICATION BETWEEN A  
 PLURALITY OF THE USERSCOORDINATING THE TRANSMISSION OF  
 ELECTRONIC MAIL 22102212ORGANIZING RECEIVED... ...ITEM EACH TIME A  
 USER USES THE SYSTEM2323LOGGING THE USER'S CURRENT ACTIVITIES  
 AND ENTERING THEMINTO THE DATABASEFigure 23B2310DEVELOPING  
**CONTENT** OF A DATA INTERFACE FOR ACCESSING DATA ON A  
 2400NETWORKMANAGING THE **CONTENT** OF THE DATA  
 INTERFACEAPPROVING THE PUBLICATION OF THE **CONTENT** BEFORE  
 TRANSMISSION OF THE 404**CONTENT**TESTING THE **CONTENT** OF THE  
 DATA INTERFACE 24061408Figure 24GENERATING A CURRICULUM OF  
**COURSE** OFFERINGSALLOWING THE SELECTION OF THE **COURSE**  
 OFFERINGS2504EDUCATING USERS OVER A NETWORK2506DISPLAYING A  
 STATUS OF THE EDUCATION OF THE USERS INCLUDING AT LEASTONE OF  
 THE **COURSES** COMPLETED AND SCORES FOR THE **COURSES**  
 COMPLETED1410Figure 25ALLOWING A USER TO REVIEW EDUCATIONAL  
 PROGRAM OFFERINGS / 2510PROMPTING ...TO AT LEAST ONE OF

APPLICATION AND SYSTEM 2702 DATA BASED ON THE USER VERIFICATION  
 DATA 2704 ENABLING VIRTUAL PRIVATE NETWORKING Figure  
 2714 14 CACHING **CONTENT** OF A NETWORK PROVIDING APPLICATION  
 PROXY SERVICES ON THE NETWORK MANAGING RESOURCES OF THE  
 NETWORK IMANAGING NETWORK OBJECTS ON THE NETWORK  
 2806 280 CONTROLLING... ...CAPABILITIES IN THE NETWORK  
 FRAMEWORK ENABLING NETWORK FRAMEWORK BROWSING IN THE  
 NETWORK FRAMEWORK/e@,.@ IO PUTTING ANSWERS TO FREQUENTLY  
 ASKED QUESTIONS RELATING TO THE 3006 **CONTENT**-RELATED WEB  
 APPLICATION SERVICES 300 PROVIDING NEWS READER CAPABILITIES IN  
 THE NETWORK FRAMEWORK IAFFORDING CHAT ROOM CAPABILITIES IN  
 THE NETWORK FRAMEWORK 3010 3012 ENABLING... ...CALL CENTERS OVER  
 THE NETWORK FRAMEWORK 1422 Figure 32 PROVIDING LOCATOR  
 CAPABILITIES OVER A NETWORK FRAMEWORK 3300 TRANSMITTING AT  
 LEAST ONE OF STREAMING VIDEO AND **AUDIO** DATA 3302 OVER THE  
 NETWORK FRAMEWORK 3304 LOGGING EVENTS OVER THE NETWORK  
 FRAMEWORK 3306 PASSIVELY MANAGING USER PROFILE INFORMATION  
 OVER THE NETWORK FRAMEWORK 1426 Figure...

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 DIALOG(R) File 349: PCT FULLTEXT  
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Country	Number	Kind	Date
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### Detailed Description:

...capabilities, data services, directory services, management services, operation services, or developer services. In the alternative, the components of the system may include commerce-related services, **content**-related services, administration-related services, customer-related services, or education-related services.

In yet another aspect of the present invention, the indicia coding may be...of software and a user of the software;

Figure 21A is an illustration of one embodiment of the present invention for automatically generating a contract **between** an owner of software and a user of the software

Figure 22 is a flowchart illustrating the **content** channels-related web application services in accordance with one embodiment of the present invention;

Figure 23 is a flowchart illustrating the customer relationship management-related... ...of the customer relationship management-related web application services in accordance

with one

embodiment of the present invention;

Figure 24 is a flowchart illustrating the **content** management and publishing-related web application services in accordance with one embodiment of the present invention; Figure 25 is a flowchart illustrating the education-related...various activities over the Internet.

Such components may include: an electronic commerce component, a content channels component, an administrative component, a customer relationship management component, a **content** management and publishing services component, an education related services component, and a web customer service component. More detail about these and other components is provided...suite.

Forum Workgroup collaboration tools that allow users to communicate in a heterogeneous environment of Business I Product3 A secure, standards-based web server for **accessing**, 1.5 managing, and distributing information over the Internet, extranets, or intranets. Product3 supports Java servlet development and network caching of web pages.

Product3 simplifies... ..commercially available Java service based on the JavaServer API framework for Java servlets. It uses servlet technology to enable server-side Java applications and provides **access** control and security features.

Java Web Server provides session tracking that provides a mechanism to track how people use and navigate websites. It also provides...of systems on the network including UNIX, NetWare, Windows NT, PC or Apple Macintosh systems.

It also provides centralized administration and control through a unified **view**.

Product6 AdminSuite -- suite of tools for administering distributed systems and managing user accounts, hosts, groups, administrative data, printer, file system, disk and serial ports.

Product5...commerce.

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rMUM

0

A suite of pre-built applications that run on Business2's Application Server. These applications include buying, selling, merchandising, and delivering **content** over the Internet.

Product1 ECProduct1 - Software for the integration of eCommerce applications with legacy systems. It provides for the sending, receiving, and encrypted transmission of... ...I -An application that utilizes both passive and active customer profiling capabilities to create targeted advertising, and to deliver personalized information for superior customer service. **Content** management tools are combined with application development tools to allow to host and deploy multiple sites.

MerchantProduct1 - An online business-to consumer merchandising solution that provides the **following** features.

A single shopping cart for each customer, forms filled with predefined account information, tax calculation and discounts, product availability, and upto-date order status... ...in a group.

Calendar - delivers group scheduling based on a scalable real-time architecture.

Browser Customization

Business2 Business Customization Kit enables Internet service providers, Internet **content** providers, hardware OEMs, and others to create customized versions of Product2.

Business2 Mission Control Desktop - cross platform administration tools to configure, deploy, centrally manage, and... ...scale web sites. Business2 Enterprise Server includes a built-in search engine and supports standard security and authentication. The integrated LiveWire Pro software also adds **content** management, data access, and session management capabilities.

Business2 also offers FastTrack Server - an entry-level enterprise server with limited functionality.

Business2 A middleware infrastructure that... ...Software Developer's Kit provides application programming interfaces that enable developers to directory-enable their applications.

Business2 Proxy A system for caching and filtering web **content**, log analysis, Server and boosting network performance.

Business2 Calenda A calendar server that supports the scheduling of meetings,

appointments, and resources for thousands of users.

Server

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UME I 1111MY1

A newsgroup server that provides collaboration services through discussion groups. Business2 Chat Server also supports the moderation of **content** and administration of discussion groups.

Bussincss2 An email server that delivers messages with embedded sound, Messaging Server graphics, video files, HTML forms, Java applets, and...capabilities to help administrators gather and organize enterprise resources scattered across intranets so that users can find and retrieve information more efficiently.

Media Server - An **audio** publishing, broadcasting, and receiving system that enables the creation and delivery of media-rich information, both inside and outside the enterprise.

Media server includes four components.

Media Server - play real-time **audio** feeds, provide on-demand access to pre-recorded **audio** clips, and synchronize **audio** with HTML documents, Java applets, and JavaScript applications.

Media Proxy Server - a transparent intermediary between Media Player and Media Servers which provides safe passage through the firewall for **audio** connections and operates as a reverse-proxy outside a firewall.

Media Converter - compresses and converts different **audio** forinats.

Media Player - a plug-in needed to access **audio** files or a live feed from a Media Server.

1.4

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. 5 Business3 (www. business3. com)

Business3 primarily provides Internet services for web users...platform-independent Java applets." Java applets are small, specialized applications that comply with Sun's Java Application Programming Interface (API) allowing developers to add "interactive **content**" to Web documents (e.g., simple animations, page adornments, basic games, etc.). Applets execute within a Java-compatible browser (e.g., Netscape Navigator) by

copying... ...Another technology that provides similar function to JAVA is provided by Microsoft and ActiveX Technologies, to give developers and Web designers wherewithal to build dynamic **content** for the Internet and personal computers. ActiveX includes tools for developing animation, 3-D virtual reality, video and other multimedia **content**. The tools use Internet standards, work on multiple platforms, and are being supported by over 100 companies. The group's building blocks are called ActiveX...responsibility to ensure consistency across all these fon-nats.

The responsibilities of the Information Management team therefore cover.

Repository Management

Folder Management

Object Management

Media **Content** Management

Information and data reuse coordination

In addition to managing the information for the System Building team, the Information Management team must also manage the... ...Reviewing designs

Packaging classes and components for reuse

Managing maintenance and upgrades of common components (a strong relationship with Configuration Management team is required)

Media **Content** Management

The methods of handling media **content** are somewhat different from those surrounding more traditional development **content** such as code or documentation, for this reason, a role should be defined that is responsible for the management of all media **content**.

Quality Management

The Quality team is responsible for defining and implementing the Quality Management Approach, which means defining what Quality means for the Program Leadership...and so forth.

As systems become more user-facing, important new roles are emerging that must be integrated into the Application Development teams.

a) Media **Content** Design

For any system with a user-facing component, it is extremely important that media and design specialists are involved as team members at an... ...and attractive user interfaces, but also reduces the risk of further alteration to work at a later stage.

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h) Usability

Often coupled with Media **Content** Design, it is vital that a role for usability is defined within the Application Development teams. This will ensure the usability of the system from...202)

A vast amount of information is generated within the development environment, which needs to be carefully managed (for example, design documentation, application code,

media **content**, test plans and test data). Information Management generally involves Repository Management, Folder Management and, where applicable, Object Management and Media **Content** Management.

Since a number of teams rely on the service provided by the information management team, it is important that the level of service to... ..Security Maintenance

Validation and mass change

Analysis, reporting, and querying

Security

Restricted access to various repository object types is necessary to ensure high quality repository **content**, because developers sometimes take shortcuts and make unauthorized changes to meet their deadlines. When standards have been set, a good way to enforce them is...folder and the kinds of contents it should hold.

" Perform regular clean-up, by backing up redundant or misplaced files and then removing them.

Media **Content** Management (106)

The unique nature of media **content** means that it cannot be treated in the same way as 'standard' formats, such as source code or design documentation. The major differentiating factors are... ..e. it is not easy to 'look into' a media file and understand its contents). For this reason, some of the processes that support multimedia **content** management must be handled differently.

The three major processes that are required to support media **content** management are.

Storage management

Metadata management

Version control

Storage Management

Storage management concerns the methods of storing and retrieving media **content**.

The cost of data storage may be decreasing, but it is still the case that for large volumes of media it is often uneconomical to... ..example, hard disk)

Near-line(delayedaccess,forexample,CD-ROMjukebox)

Off-line (manual access, for example, CDs or tapes on shelves)

When deciding on where media **content** should be stored, there is always a tradeoff between accessibility and cost (on-line storage being the most accessible and most

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expensive, and off... ..accessibility requirements.

Metadata Management

Data about the media that is being stored is an important commodity that must be managed. As the volume of media **content** grows, it is vital to be able to understand characteristics of the media, in order to be able to manage it correctly. Examples of

metadata include.

Media type (for example, MPEG video, JPEG image)

Media settings (for example, sample rate, resolution, compression attributes)

Usage details (which module uses the **content**)

Media source (for example, Source, author, creation date)

Legal information (for example, whether the media is copyrighted)

Version Control

As with standard development code, when media **content** is created and edited, a revision history of changes should be retained. This way, if it is necessary to revert to an original piece of media **content**, it is not necessary to go all the way back to the original source (which in the case of finding an image in a CD... ..storing the original and final copies of media (especially where volume is an issue). For this reason, a process for managing multiple versions of media **content** must be put into place.

The more advanced media **content** management tools may provide much of the functionality required to support these processes, but where this is not the case, the processes must be implemented manually.

#### c) Legal Issue Management

When dealing with media, it is often the case that **content** may be subject to copyright laws. It is important that the legal implications surrounding all **content** in the system is understood, and where necessary, royalties paid to the appropriate parties.

#### Object Management (108)

Object Management processes are very similar to those...The coordination of products that contribute to a release

The coordination of products that contribute to a release is the maintenance of a bill of **materials** for a release. It is an inventory of all software and hardware components that are related to a given release. The development environment is directly...and the result in a structured way provides the basis for performing smart searches and answering the question quickly. Repeat questions may also trigger.

#### Additional **training**

Modifications ...team understands the key performance indicators for service delivery, that these indicators are monitored, and that all personnel are adequately equipped with the tools and **training** to fill their responsibilities.

While the entire team is responsible for delivering quality, the responsibility for Quality management should be assigned to a specific individual...the development of richer user interfaces, so the design processes must adapt to reflect these new technologies. The processes that surround the design of media **content** are similar to that of regular system design, and many of the same issues that apply to designing traditional user interfaces also apply to the design of media **content**. The major change is the involvement of media **content** designers - a group of people not traditionally associated with system design and

development. As their presence is relatively new to the scene of systems development, it is often the case that media **content** designers are not fully integrated into the development team - a potentially costly mistake. It is important to ensure that media **content** designers are involved in the design process at a very early stage, and that they are fully integrated into the application design and construction teams... ..allow the development of not only media-rich interfaces, but also the functionality that lies behind them. This means that the role of the media **content** designer may now range from that of designing the ...is implemented. This communication should involve all the parties involved in the design of the system, and is usually conducted in the form of an **audio** conference. Through this process, it must be ensured that all parties are approaching problems from the same direction, and that they are

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thinking about...agenda is closely followed. Action points and commitments made during these calls must also be documented. Where issues arise that cannot be resolved using an **audio** conference (usually because the subject is based on a visual concept), video conferencing may be necessary.

#### E-Mail (138)

E-mail provides the capability of... ..binary files to messages. E-mail is a convenient tool for distributing information to a group of people, as it has the advantage of delivering **content** directly to the 'mailbox' of each individual, rather than relying on individuals to **access** a central data repository in order to retrieve the information.

#### Implementation Considerations

a) Is e- mail likely to contain sensitive information?

When setting up an e-mail system, it is important to consider the **content** that will be transferred using the system and to apply the appropriate security controls accordingly.

Is communication outside the local environment necessary?

Is remote access... ..updates are made (including deletions)

Storage is not abused

Security is enforced

To ensure that information is consistent across different formats, it is useful to **view** the management of all these information sources as part of a more general information management process. Effective information management beyond repository management is required to... ..the project team?

Teamware will generally only be effective when used within large groups of people.

Unless a critical mass of people is achieved and **content** is regularly added to the system, interest will soon dwindle, and the system will no longer be of any value.

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#### Group Scheduling (142)

Group...each member of the group must always be current. This is the responsibility not only of the group scheduler, but also of the individuals involved.

#### **Audio** / Video Conference (144)

In an ideal world, all meetings would be conducted face to face. In reality, however, it is often the case that not all the individuals who are required to take part in a meeting are on the same site. To overcome this problem, **audio** and video conferencing tools allow many individuals in different locations to communicate simultaneously. **Audio** conferencing is not a new concept, but remains a valuable tool for conducting meetings where the issues being discussed do not require the support of... ..a much richer method of communication.

#### Implementation Considerations

a) Is there enough bandwidth to support a video conferencing system?

Adding bandwidth intensive applications such as **audio**, video, and data conferencing could have severe effects on the network infrastructure and this must be anticipated. This type of implementation is also based on... ..fraudulent credit card transactions.

Mobile code security - protects corporate resources, computer files, confidential information, and corporate assets from possible mobile code attack.

0 E-mail **content** filtering - allows organizations to define and enforce email policies to ensure the appropriate email **content**.

Application development security toolkits - allow programmers to integrate privacy, authentication, and additional security features into applications by using a cryptography engine and toolkit.

0 Encryption...location of access, successful and unsuccessful access or change attempts, etc.

c) What are the performance implications of the tool?

Some security services, such as **content** scanning or auditing, may add noticeable processing time and requirements to the system. Tools should be architected in such a way that performance impacts are...broad reuse. A facility for security is required to prevent unauthorized changes to the repository elements and hence to ensure high quality and consistent repository **content**. For example, restrictions are often placed on making changes to data elements because ad-hoc changes by a single designer could have devastating impacts on...and one lower-case repository. Bridges between these repositories are key. Quality of import/export capabilities of the various repositories are key.

In many instances, **content** may not be stored directly in the repository and must be placed in storage. In this case, only a reference is stored in the repository...duplication of components while still showing that a component belongs to several folders

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Media Content Management (106)

Methods for storing and managing media **content** range from simple folder

management techniques to multimedia digital asset management systems, capable of indexing and manipulating numerous multimedia data types. There are a number of key requirements for Media **Content** Management - in particular, a Media **Content** Management system should have the ability to.

Manage multiple file formats

Efficiently store high volume files

Manage metadata. on files within the system

Manage multiple... manual processes implemented by the Information Management team depends on the richness of functionality provided by the tools chosen.

Additional functionality provided by advanced Media **Content** Management tools may include.

Intelligent indexing of media types (allowing specialized search facilities)

Capabilities for browsing media **content** (low-res images, previews)

High performance proprietary file systems (both in terms of speed and volume)

Implementation Considerations

a) What formats need to be supported?

The method of Media **Content** Management depends heavily on what media is to be stored. Ensure that the target media formats are understood before implementing the Media **Content** Management approach.

b) Where should media **content** be stored?

Where to store media **content** greatly depends on the volume of media to be stored, and the performance requirements for retrieving that data. One thing is certain however; when dealing... be communicated. Computer Based Training (CBT) tools offer the advantage of being able to train personnel directly on the target environment.

At the more basic level, **training** tools can also include **online** or paper-based **training materials** - not offering all the advantages of CBTs, but still providing the flexibility and convenience because they can be conducted as and when the trainee requires, and in any location. This removes the need to organize classes.

The decision of whether to use CBT, **online**, paper-based or instructor-led **training** is affected by the number of people that have to be trained, the complexity of the subject, and the availability and distribution of the people... Is there a large number of components?

It may be necessary to keep track of and control configurations consisting of objects such as training **materials**, documentation, hardware components, system software and even building characteristics. The existence of a large number of such components makes the task of managing their configurations... enhancements are typically.

0 Definition of a grouping mechanism for files to associate them with certain versions.

Promotion mechanisms

Definition of interconfiguration dependencies such as **between** a particular version's files and that version's related test data.

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g) Does the tool provide ease of **access** to information?

The tools should automate the storage and retrieval of all dependent software components indicated by an impact analysis report.

Version Control (114)

Version...b) Is the system complex?

Change control has broader applicability than to just application source code. It may also affect the look and feel, training **materials**, documentation, and so forth. Change Control must be formalized if the system is complex with many components.

c) Do changes need to be authorized by... The tool should be able to classify change requests into categories such as incidents, faults, or enhancements. The tool should also have the ability to **update** these categories if required.

Classification of different change requests in several different ways such as area affected, priority, estimated cost or authorization is important to...anticipated. The large volumes of complex data generally require automation of backups and restores.

The advent of Netcentric technologies has introduced an increase in media **content** that requires storage. The environment may support a high volume of media files, which must be considered in the backup/restore plans. Storage capacity planning... to granularly configure what is being audited by the tool. The audit logs should be able to optionally record User ID, time-of-day, location of **access**, successful and unsuccessful **access** or change attempts, etc.

c) What are the performance implications of the tool?

Some security services, such as **content** scanning or auditing, may add noticeable processing time and requirements to the system. Tools should be architected in such a way that performance impacts are...used today)

Network (e.g., IDMS)

Relational (e.g., DB2)

Inverted List (e.g., ADABAS)

Although entity-relationship diagrams are independent of specific DBMSs or **access** methods, a logical database design is not. This design is highly dependent on the platform components and may need to be repeated for each location...to the interface. Problems the users may have in working with the interface can be identified early on, and can be accounted for in training **materials** that are developed.

p) Is there a high degree of innovation in the workflow?

Prototyping allows the developers to experiment and, with input from users...of environment therefore entails the generation of HTML pages, often with additional

components (JavaScript, 3rd party ActiveX controls, Plug-ins) providing enhanced functionality or media **content**. Many tools are currently available for designing and creating web **content**, although HTML remains the common denominator, at the very least as a placeholder for the **content**.

In the case of systems published on the Internet, defining the target audience is less straightforward than in traditional systems, but equally important. Having a...of wrapping an object/code. As objects/code become more complex, with more functions/interfaces, then the value of wrapping them becomes more tangible.

### Media **Content** Creation

As systems become increasingly user-facing, it is important to design user interfaces that are not only functional, but also engaging and informative. This... ..evolution of media-rich applications, the development of which requires new tools and processes, and brings with it a whole new set of issues.

Media **content** can be broken down into three major media types, each with its own set of tools.

#### 2D/3D Images/Animation

##### Video

##### **Audio**

#### 2D/3D Images/Animation

Tools to handle these images range from simple paint packages to highly complex multi-layered animation graphics packages. The images created by these... ..use of high-quality textured images, or highly colored images is important, but where file storage and transmission is not an issue (where the media **content** is local to the client application,

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such as in a kiosk).

0 Vector-based tools (where the image is defined by formulae rather than... ..process of video production mean that it is usually outsourced to a third party. It is important however that the personnel charged with creating video **content** are an integral part of the Application team.

##### **Audio**

The tools required for creating **audio content** depend on the quality required, and whether or not the **content** is original. For 'sound bites' or pre-recorded **audio**, simple desktop **audio** editing applications are adequate. For high-quality original **content**, a professional recording studio is recommended. Again, if third parties are involved, it is important that they are fully integrated into the team.

For both image and **audio**, it is possible to purchase re-usable **content** from agencies, usually delivered in the form of CD-ROMs.

NOTE: Tools required to store and manage media **content** (and storage formats) are

discussed in Tools - Information Management - Media **Content** Management  
Test (136)

Testing applications (client/server or Netcentric) remains a complex task because of the large number of integrated components involved (for example, multiplatform... ..is vital to have a repository that is capable of managing the data required by each of the test subcomponents. The repository should manage the **following** entities.

Test conditions

0 Test cycles

System Investigation Requests (SIRs), triggered by a deviation of actual results from those expected

Test data

Requirements

Within the...detail is available through RTP's Test Automation Strategy - Version 1. 1.

Testing tool factors to be considered include.

0 Cost of testing tools (including **training** and support)

Cost of test model maintenance (including test data)

Testing tool ability to work with GUI application builder

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Vendor support capability

Proximity of...contact the necessary technical resources in either IS organizations to ensure the incidents and problems get resolved).

Incident Management (1308)

Incident Management provides the interface **between** the users of the system and those operating and maintaining the system when an incident arises. Incident Management is responsible for.

receiving incidents from users...as a background task, freeing up system resources for use on-line.

Will review before printfacilities be provided?

If these facilities will be provided, all **material** will not need to be printed. If the **material** does need to be print; however, the location of the printing must be determined, and the system must be able to forward the printing on...

### **Claims:**

...required for implementation as recited in claim 1, wherein the components of the system are selected from the group of components including commerce-related services, **content**-related services, administration-related services, customer-related services, and education-related services.

7 A method for effectively conveying which components of a system are required...Date

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 FREQUENTLY ASKED QUESTIONS RELATING TO THE 2206**CONTENT**-  
 RELATED WEB APPLICATION SERVICES220ENABLING REAL TIME  
 COMMUNICATION BETWEEN A PLURALITY OF THE USERSCOORDINATING  
 THE TRANSMISSION OF ELECTRONIC MAIL 2210ORGANIZING RECEIVED  
 ELECTRONIC... ..ITEM EACH TIME A USER USES THE SYSTEM2323LOGGING  
 THE USER'S CURRENT ACTIVITIES AND ENTERING THEMINTO THE  
 DATABASEFigure 23B2310DEVELOPING **CONTENT** OF A DATA INTERFAde  
 FOR ACCESSING DATA ON A 2400NETWORK2402MANAGING THE **CONTENT**  
 OF THE DATA INTERFACEAPPROVING THE PUBLICATION OF THE  
**CONTENT** BEFORE TRANSMISSION OF THE 2404**CONTENT**TESTING THE  
**CONTENT** OF THE DATA INTERFACE 24061408Figure 24GENERATING A  
 CURRICULUM OF **COURSE** OFFERINGS2502ALLOWING THE SELECTION OF  
 THE **COURSE** OFFERINGS2504EDUCATING USERS OVER A NETWORKI  
 2506DISPLAYING A STATUS OF THE EDUCATION OF THE USERS INCLUDING  
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**COURSES** COMPLETED1410Figure 25ALLOWING A USER TO REVIEW  
 EDUCATIONAL PROGRAM OFFERINGSPROMPTING THE USER TO ENTER  
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 OF APPLICATION AND SYSTEM 2702DATA BASED ON THE USER  
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 2704Figure 271414CACHING **CONTENT** OF ANETWORK2PROVIDING  
 APPLICATION PROXY SERVICES ON THE NETWORKMANAGING RESOURCES  
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 280CONTROLLING AT... ..THE NETWORK FRAMEWORKENABLING  
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 QUESTIONS RELATING TO THE 3006**CONTENT**-RELATED WEB APPLICATION

SERVICES300PROVIDING NEWS READER CAPABILITIES IN THE NETWORK  
FRAMEWORKAFFORDING CHAT ROOM CAPABILITIES IN THE NETWORK  
FRAMEWORK 30103012ENABLING PLAYBACK... ..CENTERS OVER THE  
NETWORK FRAMEWORK 32061422 Figure 32PROVIDING LOCATOR  
CAPABILITIES OVER A NETWORK FRAMEWORK 3300TRANSMITTING AT  
LEAST ONE OF STREAMING VIDEO AND **AUDIO** DATA 3302OVER THE  
NETWORK FRAMEWORK3304LOGGING EVENTS OVER THE NETWORK  
FRAMEWORK3306PASSIVELY MANAGING USER PROFILE INFORMATION  
OVER THENETWORK FRAMEWORK1426 Figure...

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DIALOG(R)File 349: PCT FULLTEXT  
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	Country	Number	Kind	Date
Patent				19

### Detailed Description:

...services, directory services, management services, operation services, or developer services. In the alternative, the components of the current network framework may include commerce-related services, **content**-related services, administration-related services, customer-related services, or education- related services.

In still yet another aspect of the present invention, the indicia coding may...present invention for automatically generating a contract between an owner of software and a user of the software

Figure 22 is a flowchart illustrating the **content** channels-related web application services in accordance with one embodiment of the present invention;

Figure 23 is a flowchart illustrating the customer relationship management-related... ..of the customer relationship management-related web application services in accordance with one

embodiment of the present invention;

Figure 24 is a flowchart illustrating the **content** management and publishing-related web application services in accordance with one embodiment of the present invention; Figure 25 is a flowchart illustrating the education-related...A plurality of components are shown which are necessary to afford various activities over the Internet.

Such components may include: an electronic commerce component, a **content** channels component, an administrative component, a customer relationship management

component, a **content** management and publishing services component, an education related services component, and a web customer service component. More detail about these and other components is provided...urn IMM1

Business2 A suite of pre-built applications that run on Business2's Application Server. These applications include buying, selling, Commerce merchandising, and delivering **content** over the Internet.

Product1 ECProduct1 - Software for the integration of eCommerce applications with legacy systems. It provides for the sending, receiving, and encrypted transmission of... ...PublishingProduct1 - An application that

utilizes both passive and active customer profiling capabilities to create targeted advertising, and to deliver personalized information for superior customer service. **Content** management tools are combined with application development tools to allow to host and deploy multiple sites.

MerchantProduct1 - An online business-to consumer merchandising solution that... ...in a group.

Calendar - delivers group scheduling based on a scalable real-time architecture.

Browser Customization

Business2 Business Customization Kit enables Internet service providers, Internet **content** providers, hardware OEMs, and others to create customized versions of Product2.

Business2 Mission Control Desktop - cross platform administration tools to configure, deploy, centrally manage, and... ...scale web sites. Business2 Enterprise Server includes a built-in search engine and supports standard security and authentication. The integrated LiveWire Pro software also adds **content** management, data access, and session management capabilities.

Business2 also offers FastTrack Server - an entry-level enterprise server with limited functionality.

Business2 A middleware infrastructure that... ...Software Developer's Kit provides application programming interfaces that enable developers to directory-enable their applications.

Business2 Proxy A system for caching and filtering web **content**, log analysis, Server

and boosting network performance.

**Business2 Calenda** A calendar server that supports the scheduling of meetings, appointments, and resources for thousands of users.

**Server**

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A newsgroup server that provides collaboration services through discussion groups. **Business2 Chat Server** also supports the moderation of **content** and administration of discussion groups.

**Business2** An email server that delivers messages with embedded sound, Messaging Server graphics, video files, HTML forms, Java applets, and...capabilities to help administrators gather and organize enterprise resources scattered across intranets so that users can find and retrieve information more efficiently.

**Media Server** - An **audio** publishing, broadcasting, and receiving system that enables the creation and delivery of media-rich information, both inside and outside the enterprise.

Media server includes four components.

**Media Server** - play real-time **audio** feeds, provide on-demand access to pre-recorded **audio** clips, and synchronize **audio** with HTML documents, Java applets, and JavaScript applications.

**Media Proxy Server** - a transparent intermediary between Media Player and Media Servers which provides safe passage through the firewall for **audio** connections and operates as a reverse-proxy outside a firewall.

**Media Converter** - compresses and converts different **audio** formats.

**Media Player** - a plug-in needed to access **audio** files or a live feed from a Media Server.

1.4

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. 5 **Business3** ([www.business3.com](http://www.business3.com))

**Business3** primarily provides Internet services for web users...platform-independent Java applets." Java applets are small, specialized applications that comply with Sun's Java Application Programming Interface (API) allowing developers to add "interactive

**content**" to Web documents (e.g., simple animations, page adornments, basic games, etc.). Applets execute within a Java-compatible browser (e.g., Netscape Navigator) by copying... ...Another technology that provides similar function to JAVA is provided by Microsoft and ActiveX Technologies, to give developers and Web designers wherewithal to build dynamic **content** for the Internet and personal computers. ActiveX includes tools for developing animation, 3-D virtual reality, video and other multimedia **content**. The tools use Internet standards, work on multiple platforms, and are being supported by over 100 companies. The group's building blocks are called ActiveX...s responsibility to ensure consistency across all these formats.

The responsibilities of the Information Management team therefore cover.

Repository Management

Folder Management

Object Management

Media **Content** Management

Information and data reuse coordination

In addition to managing the information for the System Building team, the Information Management team must also manage the... ...Reviewing designs

Packaging classes and components for reuse

Managing maintenance and upgrades of common components (a strong relationship with Configuration Management team is required)

Media **Content** Managemen

The methods of handling media **content** are somewhat different from those surrounding more traditional development **content** such as code or documentation, for this reason, a role should be defined that is responsible for the management of all media **content**.

Quality Management

The Quality team is responsible for defining and implementing the Quality Management Approach, which means defining what Quality means for the Program Leadership...and so forth.

As systems become more user-facing, important new roles are emerging that must be integrated into the Application Development teams.

a) Media **Content** Design

For any system with a user-facing component, it is extremely important that media and design specialists are involved as team members at an... ...and attractive user interfaces, but also reduces the risk of further alteration to work at a later stage.

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b) Usability

Often coupled with Media **Content** Design, it is vital that a role for usability is defined within the Application Development teams. This will ensure the usability of the system from...202)

A vast amount of information is generated within the development environment, which needs to be carefully managed (for example, design documentation, application code, media **content**, test plans and test data). Information Management generally involves Repository Management, Folder Management and, where applicable, Object Management and Media **Content** Management.

Since a number of teams rely on the service provided by the information management team, it is important that the level of service to... ..Security Maintenance

Validation and mass change

Analysis, reporting, and querying

Security

Restricted access to various repository object types is necessary to ensure high quality repository **content**, because developers sometimes take shortcuts and make unauthorized changes to meet their deadlines. When standards have been set, a good way to enforce them is...folder and the kinds of contents it should hold.

" Perform regular clean-up, by backing up redundant or misplaced files and then removing them.

Media **Content** Management (106)

The unique nature of media **content** means that it cannot be treated in the same way as 'standard' formats, such as source code or design documentation. The major differentiating factors are... ..e. it is not easy to 'look into' a media file and understand its contents). For this reason, some of the processes that support multimedia **content** management must be handled differently.

The three major processes that are required to support media **content** management are.

Storage management

Metadata management

Version control

Storage Management

Storage management concerns the methods of storing and retrieving media **content**.

The cost of data storage may be decreasing, but it is still the case that for large volumes of media it is often uneconomical to...example, hard disk)

Near-line(delayedaccess,forexample,CD-ROMjukebox)

Off-line (manual access, for example, CDs or tapes on shelves)

When deciding on where media **content** should be stored, there is always a tradeoff between accessibility and cost (on-line storage being the most accessible and most

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expensive, and off... ..accessibility requirements.

Metadata Management

Data about the media that is being stored is an important commodity that must be

managed. As the volume of media **content** grows, it is vital to be able to understand characteristics of the media, in order to be able to manage it correctly, Examples of metadata include.

Media type (for example, MPEG video, JPEG image)

Media settings (for example, sample rate, resolution, compression attributes)

Usage details (which module uses the **content**)

Media source (for example, Source, author, creation date)

Legal information (for example, whether the media is copyrighted)

Version Control

As with standard development code, when media **content** is created and edited, a revision history of changes should be retained. This way, if it is necessary to revert to an original piece of media **content**, it is not necessary to go all the way back to the original source (which in the case of finding an image in a CD... ..storing the original and final copies of media (especially where volume is an issue). For this reason, a process for managing multiple versions of media **content** must be put into place.

The more advanced media **content** management tools may provide much of the functionality required to support these processes, but where this is not the case, the processes must be implemented manually.

#### c) Legal Issue Management

When dealing with media, it is often the case that **content** may be subject to copyright laws. It is important that the legal implications surrounding all **content** in the system is understood, and where necessary, royalties paid to the appropriate parties.

#### Object Management (108)

Object Management processes are very similar to those...The coordination of products that contribute to a release

The coordination of products that contribute to a release is the maintenance of a bill of **materials** for a release. It is an inventory of all software and hardware components that are related to a given release. The development environment is directly...Help Desk tool. This can be achieved, for example, by adding a smart word search capability on top of the Help Desk history database.

Comprehensive **training** must be given to Help Desk personnel in order to ensure the best possible level of service to the developers.

In addition to serving internal...the development of richer user interfaces, so the design processes must adapt to reflect these new technologies. The processes that surround the design of media **content** are similar to that of regular system design, and many of the same issues that apply to designing traditional user interfaces also apply to the design of media **content**. The major change is the involvement of media **content** designers - a group of people not traditionally associated with system design and development. As their presence is relatively new to the scene of systems development, it is often the case

that media **content** designers are not fully integrated into the development team - a potentially costly mistake. It is important to ensure that media **content** designers are involved in the design process at a very early stage, and that they are fully integrated into the application design and construction teams... ..allow the development of not only media-rich interfaces, but also the functionality that lies behind them. This means that the role of the media **content** designer may now range from that of designing the look and feel of a user interface, to developing the entire presentation layer of an application... ..is implemented. This communication should involve all the parties involved in the design of the system, and is usually conducted in the form of an **audio** conference. Through this process, it must be ensured that all parties are approaching problems from the same direction, and that they are

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thinking about...agenda is closely followed. Action points and commitments made during these calls must also be documented. Where issues arise that cannot be resolved using an **audio** conference (usually because the subject is based on a visual concept), video conferencing may be necessary.

#### E-Mail (138)

E-mail provides the capability of... ..binary files to messages. E-mail is a convenient tool for distributing information to a group of people, as it has the advantage of delivering **content** directly to the 'mailbox' of each individual, rather than relying on individuals to access a central data repository in order to retrieve the information.

#### Implementation Considerations

a) Is e- mail likely to contain sensitive information?

When setting up an e-mail system, it is important to consider the **content** that will be transferred using the system and to apply the appropriate security controls accordingly.

Is communication outside the local environment necessary?

Is remote access of people is achieved and **content** is regularly added to the system, interest will soon dwindle, and the system will no longer be of any value.

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#### Group SchedglinZ (142)

Group... ..each member of the group must always be current. This is the responsibility not only of the group scheduler, but also of the individuals involved.

#### **Audio** / Video Conference (144)

In an ideal world, all meetings would be conducted face to face. In reality, however, it is often the case that not all the individuals who are required to take part in a meeting are on the same site. To overcome this problem, **audio** and video conferencing tools allow many individuals in different locations to communicate simultaneously. **Audio** conferencing is not a new concept, but remains a valuable tool for conducting meetings where the issues being discussed do not require the support of... ..a much richer method of communication.

## Implementation Considerations

a) Is there enough bandwidth to support a video conferencing system?

Adding bandwidth intensive applications such as **audio**, video, and data conferencing could have severe effects on the network infrastructure and this must be anticipated. This type of implementation is also based on mail **content** filtering - allows organizations to define and enforce email policies to ensure the appropriate email **content**.

Application development security toolkits - allow programmers to integrate privacy, authentication, and additional security features into applications by using a cryptography engine and toolkit.

" Encryption - provides... ..location of access, successful and unsuccessful access or change attempts, etc.

c) What are the performance implications of the tool?

Some security services, such as **content** scanning or auditing, may add noticeable processing time and requirements to the system. Tools should be architected in such a way that performance impacts are...broad reuse. A facility for security is required to prevent unauthorized changes to the repository elements and hence to ensure high quality and consistent repository **content**. For example, restrictions are often placed on making changes to data elements because ad-hoc changes by a single designer could have devastating impacts on...and one lower-case repository. Bridges between these repositories are key. Quality of import/export capabilities of the various repositories are key.

In many instances, **content** may not be stored directly in the repository and must be placed in storage. In this case, only a reference is stored in the repository....several folders

Migration between folders

Nested folders

Links to avoid duplication of components while still showing that a component belongs to several folders

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Media **Content** Management (106)

Methods for storing and managing media **content** range from simple folder management techniques to multimedia digital asset management systems, capable of indexing and manipulating numerous multimedia data types. There are a number of key requirements for Media **Content** Management - in particular, a Media **Content** Management system should have the ability to.

Manage multiple file formats

Efficiently store high volume files

Manage metadata on files within the system

Manage multiple... ..manual processes implemented by the Information Management team depends on the richness of functionality provided by the tools chosen.

Additional functionality provided by advanced Media **Content** Management tools may include.

Intelligent indexing of media types (allowing specialized search facilities)

Capabilities for browsing media **content** (low-res images, previews)

High performance proprietary file systems (both in terms of speed and volume)

Implementation Considerations

a) What formats need to be supported?

The method of Media **Content** Management depends heavily on what media is to be.

stored. Ensure that the target media formats are understood before implementing the Media **Content** Management approach.

b) Where should media **content** be stored?

Where to store media **content** greatly depends on the volume of media to be stored, and the performance requirements for retrieving that data. One thing is certain however; when dealing...be communicated. ComputerBased Training (CBT) tools offer the advantage of being able to train personnel directly on the target environment.

At the more basic level, **training** tools can also include **online** or paper-based **training materials** - not offering all the advantages of CBTs, but still providing the flexibility and convenience because they can be conducted as and when the trainee requires, and in any location. This removes the need to organize classes.

The decision of whether to use CBT, **online**, paper-based or instructor-led **training** is affected by the number of people that have to be trained, the complexity of the subject, and the availability and distribution of the people... ..status.

Reporting

Reporting Tools are used to summarize status and metrics to program and project management.

Configuration Management (210)

Configuration Management tools ensure that consistency **between** components and a given environment is maintained over time as components are changed.

Implementation Considerations

a) Does the testing effort involve numerous applications with common... ..e) Is there a large number of components?

It may be necessary to keep track of and control configurations consisting of objects such as training **materials**, documentation, hardware components, system software and even building characteristics. The existence of a large number of such components makes the task of managing their configurations...being delivered late with inconsistent quality because requirements change continuously.

b) Is the system complex?

Change control has broader applicability than just application source code. It may also affect the look and feel, training **materials**, documentation, and so forth. Change Control must be formalized if the system is complex with many components.

c) Do changes need to be authorized by incidents, faults, or enhancements. The tool should also have the ability to **update** these categories if required.

Classification of different change requests in several different ways such as area affected, priority, estimated cost or authorization is important to... ..e) Is the system complex (consisting of more than 1000 components)?

The task of promoting components and locking these components to prevent concurrent or unauthorized **updates** to them or their dependents becomes very intricate as the number of components reaches 1000. Migration control tools can be used to improve productivity by... anticipated. The large volumes of complex data generally require automation of backups and restores.

The advent of Netcentric technologies has introduced an increase in media **content** that requires storage. The environment may support a high volume of media files, which must be considered in the backup/restore plans. Storage capacity planning... ..may involve other tools which, for example, provide a higher compression ratio.

## Security

Security tools are required in the development environment to ensure against unauthorized **access** by individuals and system processes, to limit damages caused by such unauthorized access, and to audit access the environment services. At the security management level... ..location of access, successful and unsuccessful access or change attempts, etc.

c) What are the performance implications of the tool?

Some security services, such as **content** scanning or auditing, may add noticeable processing time and requirements to the system. Tools should be architected in such a way that performance impacts are... to the interface. Problems the users may have in working with the interface can be identified early on, and can be accounted for in training **materials** that are developed.

p) Is there a high degree of innovation in the workflow?

Prototyping allows the developers to experiment and, with input from users... of environment therefore entails the generation of HTML pages, often with additional components (JavaScript, 3rd party ActiveX controls, Plug-ins) providing enhanced functionality or media **content**. Many tools are currently available for designing and creating web **content**, although HTML remains the common denominator, at the very least as a placeholder for the **content**.

In the case of systems published on the Internet, defining the target audience is less straightforward than in traditional systems, but equally important. Having a... calls to the

database and to other modules.

#### Product Considerations

a) What testing team factors should be considered when using a source code debugging tool?

Communication **between** development team and testing team

A code analysis tool can help the testing team detect unreported changes in the application code, and therefore help alleviate...of wrapping an object/code. As objects/code become more complex, with more functions/interfaces, then the value of wrapping them becomes more tangible.

#### Media **Content** Creation

As systems become increasingly user-facing, it is important to design user interfaces that are not only functional, but also engaging and informative. This... ..evolution of media-rich applications, the development of which requires new tools and processes, and brings with it a whole new set of issues.

Media **content** can be broken down into three major media types, each with its own set of tools.

#### 2D/3D Images/Animation

##### Video

##### **Audio**

#### 2D/3D Images/Animation

Tools to handle these images range from simple paint packages to highly complex multi-layered animation graphics packages. The images created by these... ..use of high-quality textured images, or highly colored images is important, but where file storage and transmission is not an issue (where the media **content** is local to the client application,

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such as in a kiosk).

\* Vector-based tools (where the image is defined by formulae rather than pixel... ..process of video production mean that it is usually outsourced to a third party. It is important however that the personnel charged with creating video **content** are an integral part of the Application team.

##### **Audio**

The tools required for creating **audio content** depend on the quality required, and whether or not the **content** is original. For 'sound bites' or pre-recorded **audio**, simple desktop **audio** editing applications are adequate. For high-quality original **content**, a professional recording studio is recommended. Again, if third parties are involved, it is important that they are fully integrated into the team.

For both image and **audio**, it is possible to purchase re-usable **content** from agencies, usually delivered in the form of CD-ROMs.

NOTE: Tools required to store and manage media **content** (and storage fori-nats) are discussed in Tools - Information Management - Media **Content** Management Test (136)

Testing applications (client/server or Netcentric) remains a complex task because of the large number of integrated components involved (for example, multiplatform...knowledge is captured in the tests. Retention of team members is therefore far less critical than with a nonrepeatable test model, and expected costs of **training** new team members are reduced.

If the application does not change, repeating the tests yields the same results every time, given the same baseline databases...generic key design questions. Key design decisions that relate specifically to a function are presented in 167

each of the subsequent functional grouping chapters.

The **following** generic decisions impact need for specific components.

When and how frequently, does the function need to be performed?

The timing and frequency of each function may...as a background task, freeing up system resources for use on-line.

Will review before print facilities be provided?

If these facilities will be provided, all **material** will not need to be printed. If the **material** does need to be print; however, the location of the printing must be determined, and the system must be able to forward the printing on...

## Claims:

...framework as recited in claim 1, wherein the components of the current network framework are selected from the group of components including commerce-related services, **content**-related services, administration-related services, customer-related services, and education-related services.

7 A method for identifying alliances among plurality of business entities in 360... ...framework as recited in claim IO, wherein the components of the current network framework are selected from the group of components including commerce-related services, **content**-related services, administration-related services, customer-related services, and education-related services.

16 A computer program for identifying alliances among a plurality of business entities...Rw\*&V (FM

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 Slorsg7e Auditing & eiring for lorage of ON USER SPECIFICATIONSPROVIDING A  
 PLURALITY OF NEWSGROUPS TO WHICH USERS  
 SUBSCRIBEOUTPUTTINGANSWERSTOFREQUENTLYASKEDQUESTIONSRELA  
 TINGTOTHE 2206**CONTENT**-RELATED WEB APPLICATION  
 SERVICES220ENABLING REAL TIME COMMUNICATION BETWEEN A  
 PLURALITY OF THE USERSCOORDINATING THE TRANSMISSION OF  
 ELECTRONIC MAIL 22102212ORGANIZING RECEIVED... ...BUYING PATTERN  
 FOR A PARTICULAR TYPE OFITEM EACH TIME A USER USES THE  
 SYSTEM2323LOGGINGTHEUSER'SCURRENTACTIVITIESANDENTFRINGTHEM  
 INTO THE DATABASEFigure 23B2310DEVELOPING **CONTENT** OF A DATA  
 INTERFACE FOR ACCESSING DATA ON A 2400NETWORK2MANAGING THE  
**CONTENT** OF THE DATA INTERFACE.APPROVING THE PUBLICATION OF  
 THE **CONTENT** BEFORE TRANSMISSION OF THE 404**CONTENT**2406TESTING  
 THE **CONTENT** OF THE DATA INTERFACE1408Figure 24GENERATING A  
 CURRICULUM OF **COURSE** OFFERINGSALLOWING THE SELECTION OF THE  
**COURSE** OFFERINGS4EDUCATING USERS OVER A NETWORKI  
 2506DISPLAYING A STATUS OF THE EDUCATION OF THE USERS INCLUDING  
 AT LEASTONE OF THE **COURSES** COMPLETED AND SCORES FOR THE  
**COURSES** COMPLETED1410Figure 25.ALLOWING A USER TO REVIEW  
 EDUCATIONAL PROGRAM OFFERINGPROMPTING THE USER TO ENTER  
 USER INDICIA 2511RECEIVING THE USER INDICIA 2512... ...TO AT LEAST ONE  
 OF APPLICATION AND SYSTEM 2702DATA BASED ON THE USER  
 VERIFICATION DATA2704ENABLING VIRTUAL PRIVATE NETWORKINGFigure  
 271414CACHING **CONTENT** OF A NETWORK2802PROVIDING APPLICATION  
 PROXY SERVICES ON THE NETWORK2804MANAGING RESOURCES OF THE  
 NETWORKIMANAGING NETWORK OBJECTS ON THE NETWORK 280... ...MAIL  
 CAPABILITIES IN THE NETWORK FRAMEWORKENABLING NETWORK  
 FRAMEWORK BROWSING IN THE NETWORK  
 FRAMEWORK/oo,@%,@OUTPUTTING ANSWERS TO FREQUENTLY ASKED  
 QUESTIONS RELATING TO THE 3006**CONTENT**-RELATED WEB APPLICATION  
 SERVICES300PROVIDING NEWS READER CAPABILITIES IN THE NETWORK  
 FRAMEWORKAFFORDING CHAT ROOM CAPABILITIES IN THE NETWORK  
 FRAMEWORK 3010ENABLING PLAYBACK CAPABILITIES... ...CENTERS OVER  
 THE NETWORK FRAMEWORK 32061422 Figure 32PROVIDING LOCATOR  
 CAPABILITIES OVER A NETWORK FRAMEWORK 3300TRANSMITTING AT  
 LEAST ONE OF STREAMING VIDEO AND **AUDIO** DATA 3302OVER THE  
 NETWORK FRAMEWORK3304LOGGING EVENTS OVER THE NETWORK  
 FRAMEWORKPASSIVELY MANAGING USER PROFILE INFORMATION OVER  
 THE 3306NETWORK FRAMEWORK1426 Figure...

Country	Number	Kind	Date
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**Claims:**

...device connected to said user interface device and said memory device, said processing device being operable to generate snap shots corresponding to each of said **content** segments and to create a cache movie by providing said snap shots sequentially to said display device.

23 A system as claimed in claim 22... ...from said memory device.

25 A system as claimed in claim 22, further comprising a remote memory device for storing at least one of said **content** segments and a network for connecting said processing device and said remote memory device, said processing device being operable to suspend presentation of said cache movie and provide one of said snap shots to said display device, and to access one of said **content** segments corresponding thereto by retrieving said **content** segment from one of said memory device and said remote memory device.

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26 A system as claimed in claim 22, wherein said **content** is provided to said user via broadcast programs, said processing device being programmable to generate a screen comprising prompts to guide said user to select... ...broadcast programs selected by said user.

27 A system as claimed in claim 22, wherein said memory device is provided with a plurality of digital **audio** programs for providing different types of music, said processing device being programmable to permit said user to make at least one of a plurality of selections comprising which of said different ones of said plurality of **audio** programs is to be output as ambient background music during said cache movie, whether said **audio** output device is to be muted, when to update said memory device by downloading at least one new **audio** program to said memory device, and a volume level setting for said **audio** output device when said ambient background music is played.

28 A system as claimed in claim 27, wherein said processing device is programmable to synchronize the rate at which said snap shots are generated on said display device with one of said **audio** programs.

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29 A system as claimed in claim 29, wherein said processing device synchronizes the

generation of said snap shots using synchronization tool instructions... ..as claimed in claim 29, wherein said memory device stores a plurality of 5 subsets of synchronization tool instructions corresponding to respective ones of said **audio** programs, and said processing device generates said snap shots on said display device at different rates in accordance with one of said plurality of subsets corresponding to said **audio** program selected by said user. o 31. A system as claimed in claim 22, wherein said processing device is programmable to generate a screen comprising... ..in selecting a screen destination for placement of said onscreen window to customize where said processing device is to display at least one of said **content** segments and said snap shots.

32 A system as claimed in claim 31, wherein ...I

more than one of said plurality of cache movies simultaneously on said display device.

34 A system as claimed in claim 22, wherein said **content** is available from at least one of a **content** aggregator and a gateway and said processing device is programmable to generate a **content** screen comprising a menu of information topics and programs corresponding to said **content** segments, said processing device generating at least one snap shot for storage in said memory device of at least one of said **content** segments corresponding to one of said information topics selected from said menu by said user via 20 said input device.

35 A system as claimed in claim 34, wherein said **content** is associated into different categories having respective category names, said processing device being operable to assemble said snap shots for presentation in said cache movie... ..the presentation of said snap shots during said cache movie, and to provide named sections on said bar indicating respective said categories of selected said **content** such that, when one of said named sections on said bar is clicked on using said input device, said processing device presents one of said... ..said control panel section on said bar.

37 A system as claimed in claim 22, wherein at least one of said snap shots and said **content** segments displayed on said output device comprises a link from a portion thereof to one of said **content** segments. said processing device being operable to automatically suspend presentation of said cache movie when said user selects said link.

38 A system as claimed in claim 37, wherein said processing device is programmable to permit said user to browse said **content** segments to resume presentation of said cache movie in response to request by said user via said input device.

39 A system as claimed in... ..comprises decreasing the size of a current screen generated by said processing device on said display device during one of said cache movie and said **content** segment being reviewed until said current screen is blank, generating said current screen to appear to be moving across said display device, and fading said...

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	Country	Number	Kind	Date
Patent				19

### **Detailed Description:**

...A. Components of Video Telephony System

1. DSP modem pools with ACD.

2. Agent

3. Video on Hold Server

4. Video Mail Server

5. Video **Content** Engine

6. Reservation Engine

7. Video Bridge

B. Scenario

C. Connection Setup

D. Calling the Destination

E. Recording Video-Mail, Store & Forward Video and Greetings... ...G. Video-conference Scheduling

### **XIII. VIDEO TELEPHONY OVER THE INTERNET**

A. Components

1. Directory and Registry Engine

2. Agents

3. Video Mail Server

4. Video **Content** Engine

5. Conference Reservation Engine

6. MCI Conference Space

7. Virtual Reality Space Engine

B. Scenario

C. Connection Setup

D. Recording Video-Mail, Store &, Forward... ...I. Point-to-Point Calls

2. Multipoint Video-Conference Calls

E. Conclusion

### **XV. VIDEO STORE AND FORWARD ARCHITECTURE**

A. Features

B. Architecture

C. Components

1. **Content** Creation and Transcoding

2. **Content** Management and Delivery

3. **Content** Retrieval and Display

D. Overview

## XVI. VIDEO OPERATOR

A. Hardware Architecture

B. Video Operator Console

C. Video Conference Call Flow

D. Video Operator Software System...Manipulation

F. Order Entry Requirements

1. Provisioning and Fulfillment

G. Traffic Systems

H. Pricing

I. Billing

## XVIII. DIRECTLINE MCI

A. Overview

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I -The ARU (**Audio** Response Unit) 502

2.The VFP (Voice Fax Platform) 504

3.The DDS (Data Distribution Service) 506

B. Rationale

C. Detail

I. Call Flow Architecture...throughout this

document, summaries of the relevant standards are listed below for  
1 5 reference.

ITU G.711 Recommendation for Pulse Code Modulation of 3kHz **Audio**  
Channels.

ITU G.722 Recommendation for 7kHz **Audio** Coding within a 64kbit/s  
channel.

ITU G.723 Recommendation for dual rate speech coder for multimedia  
communication transmitting at 5.3 and 6.3...to-Point Protocol  
MPEG Motion Pictures Expert Group, a standards body under the  
International Standards Organization(ISO), Recommendations for  
5 compression of digital Video and **Audio** including the bit stream but not the  
compression algorithms.

SLIP Serial Line Internet Protocol

RSVP Resource Reservation Setup Protocol

UDP User Datagram Protocol

III, TCP...Central Office (CO)

Switch to LEC CO, but not from end to end. The analog local loop  
transmits an analog signal, not 64 Kbps digitized **audio**. One of these  
analog local loops typically exists as the "last mile" of each of the telephone network  
circuits to attach the local telephone of...Access Point

20 ACD Automatic Call Distributor

ISN Intelligent Services Network (Intelligent Network)

ISNAP Intelligent Services Network Adjunct Processor  
 MTOC Manual Telecommunications Operator Console  
 ARU **Audio** Response Unit  
 25 ACP Automatic Call Processor  
 NAS Network **Audio** Server  
 EVS Enhanced Voice Services  
 POTS Plain Old Telephone System  
 ATM Asynchronous Transfer Mode  
 The Intelligent Network Architecture has a rich set of features and... ..call holding;  
 Manual and Automated Operator;  
 Voice Recognition and automated, interactive response;  
 Customer and customer profile verification and validation;  
 Voice Mail;  
 Call validation and database;  
**Audio** Conference reservation;  
 Video Conference reservation;  
 Fax delivery and broadcasting;  
 1 5 Customer Billing;  
 Fraud Monitoring;  
 Operational Measurements and Usage Statistics reporting; and  
 Switch interface and...is also responsible for coordinating data and  
 voice for operator-assisted calls. The ONC is comprised of Servers,  
 Databases and Agents including Live Operators or **Audio** Response Units  
 (ARU) including Automated Call Processors (ACP)s, MTOCs and associated  
 NAS 7. These systems communicate with each other on an Ethernet LAN  
 and... ..the MCI Intelligent Network include.

Play Customer Specific Voice Messages;  
 Prompt for User Input;  
 User Input based Information Access;  
 Call Extending Capabilities;  
 Call Bridging Capabilities;  
**Audio** Conference Capabilities;  
 Call Transfer Capabilities;  
 Record User Voice Messages;  
 Remote Update of Recorded Voice; and  
 Send/Receive Fax.

## 5. Additional Components.

In addition to the...Select. The  
 agents capable of call processing include Manual Telecommunications  
 Operator Console (MTOC)s 6 or Automated Call Processors (ACP)s 7 with  
 associated Network **Audio** Servers (NAS)s 7a. The ISNAP 5 determines  
 which of the Agents is free to handle the call and routes the voice call to a...and is  
 comprised of a large number of specialized processors

interacting with the switch network for call processing. one embodiment of Intelligent Network is completely **audio**-centric. Data and fax are processed as voice calls with some specialized, dedicated features and value-added services.

In another embodiment, the Intelligent Network is... ..disciplines of the ISP.

#### 1. Broadband Access.

A range of high bandwidth services are supported by a preferred embodiment. These include: Video on Demand, Conferencing, **Distance Learning**, and Telemedicine.

1 5

ATM (asynchronous transfer mode) pushes network control to the periphery of the network, obviating the trunk and switching models of traditional... ..which can be applied or reapplied from telephony to the Internet. These include access, customer equipment, personal accounts, billing, marketing (and advertising) data or application **content**, and even basic telephone service.

The telecommunication industry is a major transmission provider of the Internet. A preferred embodiment which provides many features from telephony...equipment to enable end users to gain complete control over their services.

Services provided by the ISP 2100 will span those needed in advertising, agriculture, **education**, entertainment, finance, government, law, manufacturing, medicine, network transmission, real estate, research, retailing, shipping, telecommunications, tourism, wholesaling, and many others.

Services.

Customizable: customer is able to...always be in control of the execution of a service at any given time. Service Engines may handoff control to other service engines during the **course** of service execution.

#### 5. Service Engines do not own any data, not even configuration data.

Service Engines 2134 are not targets for deployment of data...operations may include extracting the data from the Context Database and delivering it to billing systems or fraud analysis systems.

#### 6. Service Interactions.

In the **course** of a network transaction, more than one service can be invoked by the network. Sometimes, the instructions of one service may conflict with the instructions...total view enables it to locate resources across the network.

In order for the RMIB 2274 to keep accurate resource information, each LRM 2190 must **update** the RMIB with the latest resource status. This includes adding resources, removing resources and updating resource states.

Both the LRM 2190 and GRM 2188 can...of information and classifying them, the network serves the needs of IN.

Customers interact with IN in a series of call flows. Calls may be **audio** centric (as in the conventional ISP products), multimedia-based (as in internetMCI user using the web browser), video-based (as in video-ondemand) or a combination of contents.

Information can be classified as follows.

- \* **Content**;
- \* Signaling; or
- Data.

Normally, a customer interacting with the intelligent network will require all three types of information flows.

#### a) **Content**

**Content** flows contain the primary information being transported.

Examples of this are analog voice, packet switched data, streamed video and leased line traffic. This is customer... ..minimum loss, minimum latency and optimal cost. The IN elements are standardized such that the transport fabric supports more connectivity suites, in order to allow **content** to flow in the same channels with flow of other information.

#### b) Signaling

Signaling flows contain control information used by network elements.

ISUP RLT/IMT... ..crucial

billing data records often produced by the fabric and certain network platforms.

### 3. Terminology.

Network: A set of interconnected network elements capable of transporting **content**,

signaling and/or data. MCI's IXC switch fabric, the ISP extended WAN, and the Internet backbone are classic examples of networks. Current installations tend to carry different contents on different networks, each of which is specialized for specific **content** transmission. Both technology and customer requirements (for on-demand high bandwidth) will require carriers to use more unified networks for the majority of the traffic. This will require the fabric to allow for different **content** characteristics and protocols along the same channels. Another aspect of this will be more uniform **content**-independent signaling.

Site: A set of physical entities collocated in a geographically local area. In the current ISP architecture, instances of sites are Operator Center...message center is the front-end to the centralized messaging database, which is where all of the user's messages may reside, regardless of message **content**.

Three user interfaces are supported.

DTMF access to an ARU or VRU;  
WWW Browser access to a WWW Site; and  
PC Client access to a... ..continuously changing communication needs.

## 2. The Database of Messages.

An important feature that is offered is the integration of messages.

Messages of similar and dissimilar **content** are consolidated in one virtual location. Through a call, the message center provides the user with a review of all of his messages, regardless of **content** or access. Through the interface messaging capabilities, the user is also able to maintain an address book and distribution lists.

This message database is a...messages to distribution lists and Fax Broadcast lists.

## 3. Text to Speech .

The system converts text messages, received as email, faxmail or pager messages, into **audio**, which can be played back through the directlineMCI gateway. Initially, the text-to-speech capability will be limited to message header (priority, sender, subject, date...that the "universal inbox" present the proper message priority for directlineMCI voicemails.

## M. Information Services

Through the ARU interface, users will be able to receive **content** from information services which are configurable through the WWW Browser interface. Information **content** will be provided as an inbound service and

an outbound service. The information **content** that is defined through the WWW Browser (i.e., Profile Management) is defined as the inbound information **content** and will be limited to.

a Stock Quotes and Financial News

\* Headline News.

Subscribers also have the ability to access additional information **content** through the ARU interface; however, this information is not configurable through the Vr\*vVW Browser (i.e., Profile Management). This additional p6

information **content** will be referred to as outbound information **content** and will consist of

Stock Quotes and Financial News;

Headline News;

e Weather;

Sports News and Scores;

Soap Opera Updates;

Horoscopes;

Lottery Results;

\*Entertainment News; and

a Traveler's Assist.

The configurable parameters of the inbound information **content** is defined below.

Retrieval of outbound information **content** will support the entry of alphabetic characters through a DTMF keypad. Entering of alphabetic characters must be consistent with the manner that alphabetic characters are information **content** selected.

#### N. Message Storage Requirements

The message storage requirements are consistent with the message storage requirements defined below.

#### O. Profile Management

directlineMCI Profile Management

Subscribers...The seventh category consists of hybrid Internet media services, which include areas of collaborative work which involve a plurality of users. Users can collaborate on **Audio**, Data and Video. This area includes media conferencing within the Hybrid network. Then there is a broadly related area of Reservations mechanism, Operator-assisted conferencing, and the introduction of **content** into conferences. The Virtual locations of these conferences will assume importance in the future. The next-generation Chat Rooms will feature virtual conference spaces with...ongoing program of research sponsored by the US Defense Advanced Research Projects Agency. In the mid- 1980s, UNIX-based workstations were used to conduct regular **audio**/video conferencing sessions, in modest quantities, over the Internet.

These experimental applications were extended in the late 1980s with larger scale, one-way multicasting of...of the biggest contributors to delays is the sound card used. The first sound cards were half duplex and were designed for playback of recorded **audio**.

Long **audio** data buffers which helped ensure uninterrupted **audio** playback introduced real time delays. Sound card based delays are being reduced over time as full duplex cards designed for "speakerphone" applications are brought to... ..dial-up internet access) and in the packet forwarding delays in the Internet. Also there is delay inherent in filling a packet with digitized encoded **audio**. For example, to fill a packet with 90 ms of digitized **audio**, the application must wait at least 90 ms to receive the **audio** to digitize.

Shorter packets reduce packet-filling delays, but increase overhead by increasing the packet header to packet payload data ratio. The increased overhead also... ..up connection. LAN-based PCs suffer less delay, but everyone is subject to variable delays which can be annoying.

Lastly, there are delays inherent in **audio** codecs. Codec delays can vary from 5 to 30 ms for encoding or decoding. Despite the higher latencies associated with internet telephony, the price is...DAP 240 would instruct the switch to terminate at switch 230.

Based upon analysis of the dialed digits, the ISN routes the call to an **Audio** Response Unit (ARU) 252. The ARU 252 differentiates voice, fax, and modem calls. If the call is from a modem, then the call is...high-speed internet network interface 273. If the call egresses the switch via the PSTN interface 258, the call can egress as a standard PCM **Audio** call, or can egress the switch as a modem call carrying compressed digital **audio**.

In the case where the call egresses the switch 221 as a standard PCM **audio** call, the PCM **audio** is switched from PSTN Interface 257 to PSTN Interface 258 using the TDM bus 260. Similarly, PCM **audio** is switched from PSTN Interface 258 to PSTN Interface 257 using the TDM bus 260.

In the case where the call egresses the switch 221 as a modem call carrying compressed digital **audio**, the switch 221 can initiate an outbound call to a PSTN number through a PSTN interface 258, and attach across the TDM Bus 260 a DSP resource 259 acting as a modem. Once a modem session is established with the destination, the incoming PCM **audio** on PSTN interface 257 can be attached to a DSP Resource 263 acting as an **audio** codec to compress the **audio**. Example **audio** formats include ITU G.729 and G.723. The compressed **audio** is packetized into Point to Point Protocol

(PPP) packets on the DSP 263, and transferred to DSP 259 for modem delivery over the PSTN Interface on a high speed internet interface 272, the switch 221 attaches the PSTN Interface 257 to the DSP 1714

resource 263 acting as an **audio** codec to compress the PCM **audio**, and packetize the **audio** into UDP/IP packets for transmission over the Internet network. The UDP/IP packets are transferred from the DSP resource 263 over the high-speed... ...classified as normal IP packets are transferred either to the packetizer/depacketizer 292 or to the packet scheduler 298.

Packets to be converted to PCM **audio** are transferred to the packetizer/depacketizer 292. The packetizer/depacketizer takes packet contents and hands them to the codec 291, which converts compressed **audio** into PCM **Audio**, then transfers PCM **audio** to the PSTN Interface 290.

Normal IP packets to be sent to other internet devices are handed by the packet classifier 293 to the packet...the H.223 multiplex (combination of voice, data and video),  
H.245 control, H.263 video codec (digital encoder and decoder), and  
G 1.1 **audio** codec.

H.324 makes use of the logical channel signaling procedures of ITU Recommendation H.245, in which the **content** of each logical channel is described when the channel ...are provided for  
allowing each caller to utilize only the multimedia capabilities of their machine. For example a person trying to make a video (and **audio**) call to someone who only has **audio** and not video capabilities can still communicate with the **audio** method (G. 723. 1. 1)  
H.324 by definition is a point-to-point protocol. To conference with more than one other person an... ...Video Mail Server.

Video-mail messages are stored here. Customers can manage their mail and record greetings to be stored on this server.

## 5. Video **Content** Engine.

Video On Demand **content** resides on the Video **Content** Engine. Video stored here can be previously recorded video-conferences, training videos, etc.

## 6. Reservation Engine.

When people want to schedule a multi-party video...for Store & Forward Video is exactly the same as leaving a video-message, described above.

Parameters such as destination number, forwarding time, and any other

**audio** S&F features currently available are entered through the VMDI or communicated with a human video operator (or automated video ARU.) To record a personalized... ..On Demand (VOD) is through the VMDL

.22 @

These videos can be previously recorded video-conferences, training videos, etc. and are stored on the Video **Content** Engine 9.

#### G, Video-conference Scheduling

A user can navigate through the VMDI or Internet 10 WWW forms, or communicate with a human video operator...

**Dialog eLink:** Order File History  
7/K/87 (Item 49 from file: 349)  
DIALOG(R)File 349: PCT FULLTEXT  
(c) 2009 WIPO/Thomson. All rights reserved.

	Country	Number	Kind	Date
Patent				19

#### Detailed Description:

...a predetermined set of addresses.

According to another broad aspect of a preferred embodiment of the invention, telephone calls, data and other multimedia information including **audio** and video are routed through a switched network which included transfer of information across the internet. Users can participate in video conference calls in which each participant can simultaneously view the

2

video from each other participant and hear the mixed **audio** from all participants. Users can also share data and documents with other video conference participants.

According to another broad aspect of a preferred embodiment of the invention, telephone calls, data and other multimedia information including **audio** and video are routed through a switched network which includes transfer of information across the internet. Users can deliver and receive video mail messages, including video, **audio** and/or data information, to and from any other user capable of delivering and receiving such mail messages. Users can also receive stored video, **audio** and/or data information on demand from a directory of I 0 choices. User can manage more aspects of a network than previously possible and...one or more of the media clients in a collaborative session in which media is exchanged. The media server includes logic that dynamically adjusts the

**content** transmitted to a media client based on such factors as hardware supporting video, **audio** or voice; and bandwidth of the network. For example a party joining a I 0 media conference from home may not have the necessary hardware to support a video conference call, but may have plenty of bandwidth to support **audio** and might have a computer for viewing collaborative data.

In still another aspect of the invention, fourth software provides a central domain including a master...	System .....	217
1. DSP modem pools with ACD .....	2. Agent .....	217
3. Video on Hold Server .....	4. Video Mail Server .....	217
5. Video <b>Content</b> Engine .....	6. Reservation Engine .....	218
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223 3. Video Mail Server .....	223 4. Video <b>Content</b> Engine .....	223 5. Conference Reservation Engine .....
224 6. MCI Conference Space .....	224 7. Virtual Reality Space Engine .....	224 B. Scenario .....
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 (Voice Fax Platform) 504 ..... 335 3. The DDS (Data  
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3 1

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32

. TCPAP...Central Office (CO) Switch to LEC CO, but not from end to end. The analog  
 local loop transmits an analog signal, not 64 Kbps digitized audio.

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 telephone network circuits to attach the local...Data Access Point

ACD Automatic Call Distributor

ISN Intelligent Services Network (Intelligent Network)

ISNAP Intelligent Services Network Adjunct Processor

MTOC Manual Telecommunications Operator Console

ARU **Audio** Response Unit

2o ACP Automatic Call Processor

NAS Network **Audio** Server

EVS Enhanced Voice Services

POTS Plain Old Telephone System

ATM Asynchronous Transfer Mode

The Intelligent Network Architecture has a rich set of features and... ..call holding;

Manual and Automated Operator;

Voice Recognition and automated, interactive response;

Customer and customer profile verification and validation;

\* Voice Mail;

Call validation and database;

**Audio** Conference reservation;

Video Conference reservation;  
Fax delivery and broadcasting;  
\* Customer Billing;  
Fraud Monitoring;  
Operational Measurements and Usage Statistics reporting; and  
Switch interface and control.

A...is also responsible for coordinating data and voice for operator-assisted calls. The ONC is comprised of Servers, Databases and Agents including Live Operators or **Audio** Response Units (ARU) including Automated Call Processors (ACP)s, MTOCs and associated NAS 7. These systems communicate with each other on an Ethernet LAN and...Intelligent Network include.

- \* Play Customer Specific Voice Messages;
- \* Prompt for User Input;
- User Input based Information Access;
- 1 5 \* Call Extending Capabilities;
- Call Bridging Capabilities;
- Audio** Conference Capabilities;
- \* Call Transfer Capabilities;
- Record User Voice Messages;
- 9 Remote Update of Recorded Voice; and
- Send/Receive Fax.

## 5. Additional Components

In addition to...Select. The agents capable of call processing include Manual Telecommunications Operator Console (MTOC)s 6 or Automated Call Processors (ACP)s 7 with associated Network **Audio** Servers (NAS)s 7a. The ISNAP 5 determines which of the Agents is free to handle the call and routes the voice call to a...and is comprised of a large number of specialized processors interacting with the switch network for call processing. One embodiment of Intelligent Network is completely **audio**-centric. Data and fax are processed as voice calls with some specialized, dedicated features and value-added services.

In another embodiment, the Intelligent Network is...disciplines of the ISP.

### 1 . Broadband Access

A range of high bandwidth services are supported by a preferred embodiment. These include: Video on Demand, Conferencing, **Distance Learning**, and Telemedicine.

ATM (asynchronous transfer mode) pushes network control to the periphery of the network, obviating the trunk and switching models of traditional, circuit-based... ...new role for successful telecommunications companies. The ISP platform offers many features which can be applied or reapplied from telephony to the Internet. These include **access**, customer equipment, personal accounts, billing, marketing (and advertising) data or application **content**, and even basic telephone service.

I 0 The telecommunication industry is a major transmission provider of the Internet. A preferred embodiment which provides many features...be in control of the execution of a service at any given time. Service Engines may hand-off control to other service engines during the **course** of service execution.

5. Service Engines do not own any data, not even configuration data.

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Sometimes, the ...information and classifying them, the network serves the needs of IN.

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Customers interact with IN in a series of call flows. Calls may be **audio**-centric (as in the conventional ISP products), multimedia-based (as in internetMCI user using the web browser), video-based (as in video-on-demand) or a combination of contents.

Information can be classified as follows.

**Content;**  
Signaling; or  
Data.

Normally, a customer interacting with the intelligent network will require all three types of I 0 information flows.

#### a) Content

**Content** flows contain the primary information being transported. Examples of this are analog voice, packet switched data, streamed video and leased line traffic. This is customer... ..minimum loss, minimum latency and optimal cost. The IN elements are standardized such that the transport fabric supports more connectivity suites, in order to allow **content** to flow in the same channels with flow of other information.

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Signaling flows contain control information used by network elements. ISUP RLTAMT, TCPAP... ..crucial billing data records often produced by the fabric and certain network platforms.

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Terminology

Network: A set of interconnected network elements capable of transporting **content**, signaling and/or data. MCI's IXC switch fabric, the ISP extended WAN, and the Internet backbone are classic examples of networks. Current installations tend to carry different contents on different networks, each of which is specialized for specific **content** transmission.

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Three user interfaces are supported.

- \* DTMF access to an ARU or VRU;
- WWW Browser access to a WWW Site; and
- PC Client access to a...continuously changing communication needs.

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#### . The Database of Messages

An important feature that is offered is the integration of messages. Messages of similar and dissimilar **content** are consolidated in one virtual location. Through a call, the message center provides the user with a review of all of his messages, regardless of **content** or access.

Through the interface messaging capabilities, the user is also able to maintain an address book and distribution lists.

This message database is a...messages to distribution lists and Fax Broadcast lists.

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#### M. Information Services

Through the ARU interface, users will be able to receive **content** from information services which are configurable through the WWW Browser interface. Information

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Stock Quotes and Financial News  
Headline News.

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@ Stock Quotes and Financial News;  
1 5 e Headline News;  
\* Weather;  
9 Sports News and Scores;  
\* Soap Opera Updates;  
& Horoscopes;  
9 Lottery Results;  
9 Entertainment News; and  
\* Traveler's Assist.

The configurable parameters of the inbound information **content** is defined below. Retrieval of outbound information **content** will support the entry of alphabetic characters through a DTMF keypad. Entering of alphabetic characters must be consistent with the manner that alphabetic characters are information **content** selected.

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The message storage requirements are consistent with the message storage requirements defined below.

#### 0. Profile Management

directlineMCI Profile Management...The seventh category consists of hybrid Internet media services, which include areas of collaborative work which involve a plurality of users. Users can collaborate on **Audio**, Data and Video. This area includes media conferencing within the Hybrid network. Then there is a broadly related area of Reservations mechanism, Operator-assisted conferencing, and the introduction of **content** into conferences. The Virtual locations of these conferences will 1 5 assume importance in the future. The next-generation Chat Rooms will feature virtual conference...ongoing program of research sponsored by the US Defense Advanced Research Projects Agency. In the mid-1980s, UNIX-based workstations were used to conduct regular **audio**/video conferencing sessions, in modest quantities, over the Internet. These experimental applications were extended in the late 1980s with larger scale, one-way multicasting of...of the biggest contributors to delays is the sound card used. The first sound cards were half duplex and were designed for playback of recorded **audio**. Long **audio** data buffers which helped ensure uninterrupted **audio** playback introduced real time delays.

Sound card based delays are being reduced over time as full duplex cards designed for "speakerphone" applications are brought to... ..dial-up internet access) and in the packet forwarding delays in the Internet. Also there is delay inherent in filling a packet with digitized encoded **audio**. For example, to fill a packet with 90 ms of digitized **audio**, the application must wait at least 90 ms to receive the **audio** to digitize. Shorter packets reduce packet-filling delays, but increase overhead by increasing the packet header to packet payload data ratio. The increased overhead also... ..up connection. LAN-based PCs suffer less delay, but everyone is subject to variable delays which can be annoying.

Lastly, there are delays inherent in **audio** codecs. Codec delays can vary from 5 to 30 ins for encoding or decoding. Despite the higher latencies associated with internet telephony, the price is...DAP 240 would instruct the switch to terminate at switch 230.

Based upon analysis of the dialed digits, the ISN routes the call to an **Audio** Response Unit (ARU) 252. The ARU 252 differentiates voice, fax, and modem calls. If the call is a from a I 0 modem, then the...high-speed internet network interface 273. If the call egresses the switch via the PSTN interface 258, the call can egress as a standard PCM **Audio** call, or can egress the switch as a modem call carrying compressed digital **audio**.

In the case where the call egresses the switch 221 as a standard PCM **audio** call, the PCM **audio** is switched from PSl-N Interface 257 to PSTN Interface 258 using the TDM bus 260.

Similarly, PCM **audio** is switched from PSTN Interface 258 to PSTN Interface 257 using the TDM bus 260.

In the case where the call egresses the switch 221 as a modem call carrying compressed digital **audio**, the switch 221 can initiate an outbound call to a PSTN number through a PSTN interface 258, and attach across the TDM Bus 260 a DSP resource 259 acting as a modem.

Once a modem session is established with the destination, the incoming PCM **audio** on PSTN interface 257 can be attached to a DSP Resource 263 acting as an **audio** codec to compress the **audio**. Example **audio** formats include ITU G.729 and G The compressed **audio** is packetized into Point to Point Protocol (PPP) packets on the DSP 263, and transferred to DSP 259 for modem delivery over the PSTN Interface the PSTN Interface 257 to the DSP resource 263 acting as an **audio** codec to compress the PCM **audio**, and packetize the **audio** into UDP/IP packets for transmission over the Internet network. The UDP/IP packets are transferred from the DSP resource 263 over the high-speed... ..as non-nal IP packets are transferred either to the packetizer/depaketizer 292 or to the packet scheduler 298.

Packets to be converted to PCM **audio** are transferred to the packetizer/depaketizer 292.

The packetizer/depaketizer takes packet contents and hands them to the codec 291. which converts compressed **audio** into PCM **Audio**, then transfers PCM **audio** to the

PSTN Interface 290.

Normal IP packets to be sent to other internet devices are handed by the packet classifier 293 1 0 to...the H.223 multiplex (combination of voice, data and video), H.245 control, H.263 video codec (digital encoder and decoder), and G 1.1 **audio** codec.

H.324 makes use of the logical channel signaling procedures of ITU Recommendation H.245, in which the **content** of each logical channel is described when the channel is opened.

Procedures are provided for allowing each caller to utilize only the multimedia capabilities of...

### Claims:

...retrieving

stored message information based on the preference information.

4 The method as recited in claim 1, wherein the media information includes support for text, **audio**, multimedia, video and data.

5 The method as recited in claim 1, wherein the actions based on the call information comprise document delivery.

6 The... ..stored message information based on the preference information.

11 The system as recited in claim 8, wherein the stored message information includes support for text, **audio**, multimedia, video and data.594SUBSTITUTE SHEET (RULE 26). The system as recited in claim 8, wherein actions based on the call information include document...information.

18 The computer program embodied on a computer-readable medium as recited in claim 15, wherein the stored message information includes support for text, **audio**, multimedia, video and data.

19 The computer program embodied on a computer-readable medium as recited in claim 15, wherein actions based on the... ..network, comprising the steps of:(a) establishing a multicast communication among two or more consumers via the switched network and the internet for transmitting video, **audio** and/or data communication in Real-time Transmission Protocol (RTP) format;(b) transmitting the video information from each consumer to all other consumers participating in the communication simultaneously; and(c) transmitting the mixed **audio** information from all other consumers participating in the communication to each participating consumer such that each participating consumer hears all other participating consumers simultaneously.is... ..communications over a hybrid network as recited in claim 22, further comprising the steps of searching a directory of consumers available to participate in video, **audio**, and/or data communication at a user interface.

24 A method for media communication over a hybrid network as recited in claim 22, wherein a...26). An apparatus for media communication over a hybrid network as recited in claim 28, wherein the media communication comprises

a combination of video information, **audio** information and data.

30 An apparatus for media communication over a hybrid network as recited in claim 29, further comprising a user interface for searching... computer-readable medium for media communication over a hybrid network as recited in claim 34, wherein the media communication comprises a combination of video information, **audio** information and data.

36 ...multicast communication among a plurality of users for media communication in a Real-time Transmission Protocol (RTP) format utilizing the hybrid network; (b) transmitting the **audio** communication from a first user to all other users participating in the communication simultaneously; (c) transmitting the video information from a first user participating in... communication over a hybrid network as recited in claim 40, further comprising the step of searching a directory of users available to participate in video, **audio**, and/or data communication, and reflecting use of the search feature in the billing record.

42 A method for media communication over a hybrid network... a plurality of users for media communication in a Real-time Transmission Protocol (RTP) format utilizing the hybrid network; (b) communication software which transmits the **audio** communication from a first user to all other users participating in the communications simultaneously; (c) communication software which transmits the video information from a first... (26). The system as recited in claim 46, further comprising a user interface for searching a directory of users available to participate in video, **audio**, and/or data communication, and reflecting use of the search feature in the billing record.

48 The system as recited in claim 46, wherein a... a plurality of users for media communication in a Real-time Transmission Protocol (PTP) format utilizing the hybrid network; (c) second software which transmits the **audio** communication from a first user to all other users participating in the communications simultaneously; (d) third software which transmits the video information from a first... The computer program as recited in claim 52, further comprising a user interface for searching a directory of users available to participate in video, **audio**, and/or data communication, and reflecting use of the search feature in the billing record.

54 The computer program as recited in claim 52, wherein a... and a second of the media clients in a collaborative session; and (f) the media server including logic that manages the dynamic adjustment of video, **audio**, voice and other media based on a media clients capabilities to handle various forms of media. 154. The hybrid network of claim 153 in which... stored message information based on the preference information. 188. The method as recited in claim 185, wherein the stored message information includes support for text, **audio**, multimedia, video and data. 189. The method as recited in claim 185, wherein the actions based on the call information comprise document delivery. 190. The... stored message information based on the preference information. 195. The system as recited in claim 192, wherein the stored message information includes support for text, **audio**, multimedia, video and data. 640 SUBSTITUTE SHEET (RULE 26). The system as recited in claim 192, wherein actions based on the call information include document... (RULE 26). The computer program embodied on a computer-readable medium as recited in claim 199, wherein the stored message information includes support for text, **audio**, multimedia, video and data. 203. The computer program. embodied on a computer-readable medium

as recited in claim 199, wherein actions based on the...into an internet protocol address utilizing a directory service.209. The method as recited in claim 206, wherein the collect service is automated utilizing an **audio** response unit.210.

The method as recited in claim 206, wherein the collect service is completely or partially automated utilizing a video response unit.643SUBSTITUTE SHEET (RULE 26)

1 The method as recited in... ..into an internet protocol address utilizing a directory service.218. The program as recited in claim 215, wherein the collect service is automated utilizing an **audio** response unit. 219. The program as recited in claim 215, wherein the collect service is completely or partially automated utilizing a video response...the interval of time.652SUBSTITUTE SHEET (RULE 26). A method for media communication over a hybrid network, comprising the steps of:(a) recording video, **audio** and/or data communications;(b) transmitting the video, **audio** and/or data communications over the hybrid network to one or more storage locations associated with one or more designated recipient consumers;(c) storing the video, **audio** and/or data communications in the storage location(s) associated with the designated recipient consumer(s); and(d) transmitting the video, **audio** and/or data communications from each storage location ...over a hybrid network as recited in claim 254, further comprising the steps of:(a) enabling a consumer to record a greeting communication, including video, **audio** and/or data information;(b) transmitting the greeting communication over the hybrid network to a storage location associated with the consumer;(c) storing the greeting...

7/K/88 (Item 50 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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Country	Number	Kind	Date
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### Detailed Description:

...school-student data is referenced by teachers and administrators in order to track the student progress and to generate reports concerning the students and the **materials** in 25 the ABI system, Teachers also update the school-student data to enter schedule information for the student's assignments, which can be referenced and used by the student's agent.

Administrators update this data in order to enter the **courses** and **materials** the student must master and specify standards 30 and criteria the student must meet.

In an alternative embodiment, however, these various

data ...applications for special needs students,  
20 For output, preferable devices include computer display 212,  
for displaying objects such as text, graphics, animation, and  
video, and **audio** output devices for voice and sound clips.

The **audio** and voice can be constructed from data snips stored  
as digitized sound files in libraries. Alternatively, voice  
25 can be synthesized from text. The invention... ...preferably partitioned so that  
principal components of this invention are displayed; and  
important student actions are represented by icons or  
buttons. Thus, the screen includes **materials** and tools area  
3S 220 to the left, agent area 215 to the right, and a system  
toolbar 218, which includes a student customization area... ...size of the screen partitions  
illustrated

31  
preferably change from time to time in response to student  
customization or display requirements. In particular, either  
the **materials** area or the agent area can enlarge, perhaps up  
to the entire screen as needed, **Materials** area 220 is for  
5 the instructional **materials**, tools, and communication  
**materials** to present visual display objects and for these  
components to receive interactive input. This area is  
further subdivided into display region 213 and a **materials**  
specific toolbar 214. On-screen agent area 215 is for the  
10 on-screen agent to receive meta-requests and to display  
synchronous and asynchronous...virtual tutor,  
Functionally illustrated in Fig. 2A is an exemplary  
25 memory organization of a student client system when a session  
is in progress with **materials** being presented, Layer 222  
comprises operating software and network communications.

This software provides, among other services, support for 1/0  
devices attached to the client... ...The executive software verifies student  
identity and access authority, establishes communications  
35 sessions with the system servers as required during client  
start-up, downloads instructional **materials** scheduled for  
this student, and download executable software required from  
- 32

the systems servers as-needed, In the preferred embodiment  
using portable media, the executive... ...In an  
embodiment with centrally stored student data objects, the  
executive software downloads the identified student's data  
object from the student database. The instructional **material**  
and the software are read-only and are-not changed during a  
10 session, The student model is updated by the agent during  
the student... ...alternatively, directly use lower

15 level network protocols,

Fig. 2A illustrates that agent software 225, optional components of student data object 226, and certain instructional **materials** software 224 have already been downloaded, The **materials** are displaying objects in screen 20 area 220, and as indicated by arrow 227 are forwarding events to the agent and receiving management or controls from the agent. The agent is displaying its persona(e) in screen area 215, interacting with the **materials**, as represented by arrow 227, and is referencing and updating data in student data 25 model 226, as represented by arrow 228.

Arrow 228 represents...includes one or more server systems 204 of Fig. 2B with sufficient large capacity discs 230 for storing all school-student data, all instructional 20 **materials**, and all software used in the system, optionally, the servers can also store student data objects in an object oriented database. The network is used to distribute software, instructional **materials**, and school-student data from these servers. In alternative embodiments, there can be 25 more than one server with software and data component storage divided...and school-student data for their classes; while certain administrators have unlimited access. The 25 system manager can also maintain any necessary system logs, Instructional **materials** databases 240 and directories of executable software also reside on the server systems. When group communications is in use, agents and communication tasks monitoring the... ..database preferably includes school-student data, which is a source of reports for teachers and administrators and of data by which these staffs schedule student **courses** and

- 35

assignments, Preferably, student data objects, including data representing the pedagogic model of the student used by the agent software, are stored in portable... ..storage for these portable data objects.

Optionally, student data objects can be stored in an object oriented extension to student database 235, Further, certain instructional **materials** can be made available specifically for the teaching staff, along with an 10 individualized teacher agent acting as a virtual tutor for the teachers. The... ..and system training. For example, such teacher training can be user instruction in the ABI system itself, or can be teacher versions of student 15 **materials** designed to assist the teacher in his/her use and customization (in the nature of today's teacher versions of textbooks), Further, there can be teacher specific tools,

for example, to assist in generating student reports and class management. In this case the server system contains 20 special instructional **materials** for performing this instruction, Associated teacher data objects are implemented and stored similarly to student data objects, Client systems for teacher access have agents unique... ..necessary system components are downloaded from servers to these temporary client systems, Thereby, these 30 personnel are not limited to sessions on server systems.

Further, **materials** authoring can be done on server systems, client systems, or on separate systems not interconnected with a given ABI system, To make authored **materials** available, they are transferred to and indexed in the 35 appropriate server ...able to access an ABI system from any adequate client system anywhere !5 at the school, at home, and when away from home, as in **distance learning**, Portable student data objects and networks permit students and teachers to participate at more than one school, and, further, permit delivery of homework and instruction to remote locations. In each case the client 20 system must access instructional **materials** and ABI software from the network.

In various embodiments, a student can access one ABI system, as might be the case for a student enrolled at one elementary school, Alternatively, a student can have access 25 to multiple ABI systems or multiple providers of ABI-system.

compliant instructional **materials**.

Access to all system components is typically provided from ABI system servers attached to the network. Preferably read-only software and read-only instructional **materials** are 30 provided from server systems. The advantages over local storage of these elements at client systems include simplification of version control and of access... ..manually transferring if not.

35 Also server storage provides greatly reduced client system storage requirements, in view of the large amount of software and instructional **materials** in ABI systems. However, in 37 systems with limited communication bandwidth, it can be preferable to cache recently used software and instructional **materials** in order to shorten response times.

Networks suitable for an ABI system can be of any configuration and protocol that meets the system's client...a combination of ATM, cable modems, TCP/IP and other technologies, The ABI system can also be hierarchically configured on new network

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topologies for **distance learning** in areas with limited communications infrastructure, Primary central servers with ABI software and instructional **materials** communicate with remote secondary servers over broadband satellite communication systems, Student clients connect to the local secondary servers through wired or wireless means.

5e2e2o... ...and operation software are described next and are followed by a preferred client node system according to today's technology. These consideration depend on the **content** of an ABI system and the facilities of technology. As the **content** of a system changes and as technology evolves these is consideration dictate that the preferred system will change.

The client hardware consists of client input... ...memory must be sufficient to contain resident

operating system components, resident ABI executive software,

- 39

and dynamically loaded segments of the student data object, instructional **materials**, and code, High performance CPU's together ...case of caching on student client, standard version control methods known in the art are necessary to ensure that only up-to-date software and **materials** data are used. If an element is found to be out-of-date by querying a server, the current version is downloaded.

The portable media... ...over switched telephone line services, preferably using 28.8 Kbps modems or ISDN interfaces (64 or 128 Kbps), These bandwidths are adequate for sessions with **materials** 10 using only voice and limited animations. Pre-fetching and caching can be required to make fullest use of other **materials** at this bandwidth. This invention is also adaptable to high speed access over any available high speed links, such as T1 (1.5 Mbps), T3. ADSL telephone lines, or IS cable modems (several Mbps), or other means of high speed access. These bandwidths permit full access to **materials** without limitation, If economically available, high speed access is preferred, With greater communications bandwidth, the on-screen agent can appear more life-like.

Standard client...The functions of server systems of this invention

include storage of databases of executable software elements, of school-student data, if any, and of instructional **materials**. Optionally, it can also store student data objects. The latter elements consist of heterogeneous and 25 structured elements. These elements can be stored in a...of security for additional investments, Such techniques and tools include firewall machines, that is dedicated network gateways that filter incoming and outgoing packets. according to **content** 10 criteria, and monitoring software, such as tripwires, that observe system events for suspicious combinations Further, encryption can help protect sensitive and valuable data... ...in the art, such as the Rivest-Shamir-Adelman (RSA) public key algorithm or the data encryption standard private key algorithm.

For those embodiments and **materials** data that download executable code segments, the implementation language 20 importantly should address the security exposures thereby created, For example, a malevolent and knowledgeable user...it is advantageous to protect a portable student data object from being altered in an unauthorized manner, corrupted, or damaged. When ABI system compliant - 44

**materials** can be downloaded from multiple ABI systems or educational providers, particular care is advantageous to ensure correct functioning of these **materials**. Such student data object protection is accomplished by validating 5downloaded software and by encryption and key management for the student data object, Software validation includes registration procedures and runtime **access** control procedures, **Before** software or **materials** can be downloaded, they are preferably registered 10 with an ABI system registry function, which can reside on a network accessible ABI server system, Before... ...system identifier is stored in the registry along with the digital stamp, 25 At runtime, when the student requests access to particular ABI system compliant **material** or software from a provider, the student data object access control methods on the client system perform the following checking process.

First, these procedures generate... ...If this identifier is validly registered, the registry returns the digital stamp 35 associated with this identifier, The access control then downloads the software or **material**, recomputes the cryptographic hash function or checksum, and compares it with - 45

the registered value, If they do not correspond, the download request is also portable

student object is an important repository of agent knowledge, temporary instructional **materials** state data, and, optionally, educational progress data, it is important that it not be altered or corrupted accidentally or maliciously, To achieve 20 reasonable and... ..combination of instruction, utilities, and on-screen agent interaction, Because the ABI system provides individualized interactions, each such presentation comprises a unique mixture of visual, **audio**, and software elements. Also, each user's consumption of hardware and communications resources differs. The ABI System therefore preferably incorporates metering technology to track the... ..and relative usage of various components of the system, Parties interested in such information include providers of server hardware, application software, networks, instructional and tool **content**, authoring tools and on-screen agent animations, scripts and utterances, Finally, this information can be used to monitor system performance and utilization, Current metering technology does not provide the detailed measure of usage that is advantageous to ABI System providers. Such technology adapted for network distribution - 47 PCT/US97/08685 of **content** is available from, e.g., the IBM Corporation, as the IBM Cryptolope, and Electronic Publishing Resources (EPR), as the Digibox,

The ABI system comprises hardware elements, standard software elements, special application software elements, and **content** elements typically supplied by different providers.

Hardware elements include networks and other communications links, server CPUs, and disks. Standard software elements include operating systems, database packages, and communications software. Application software includes instructional playback engines, schedulers, and agent software, **Content** includes instructional **materials**, utilities such as dictionaries and encyclopedias, and onscreen agent animation and utterances.

ABI metering comprises the elements of the metering utility software, of tagging of... ..the student client, the MUS is a component function of the Session Manager with inputs derived 25 from the Executive Software, Agent Software and the **Materials** Engine, In the Server system, MUS is a component function of the System Manager Software, To facilitate metering, each ABI element is tagged with

an... ..elements move  
through the system from server to client and within the  
client, the use of these elements is metered, In the client  
software, the **Materials** Engine uses **materials** ownership tags  
35 to meter **content**. The agent utterance generation and visual  
display generation uses tags of the data snips to track  
- 48

ownership of on-screen agent actions, The session... ..to estimate the number of packets  
transferred, The ABI application software keeps track of  
counting the number of bytes transmitted to the user  
according to **content** type (i.e, system packets, instructional  
**materials**. or elf animations), Then based on the network  
15 transfer protocol used, the byte count may be converted to a  
roughly equivalent packet count, Alternatively of the multiple simultaneous on-screen  
activities  
such as instructional **materials**, the elf, and the dictionary.

This method preferably further monitors the active element of  
25 presentation, that is, the element performing an action or  
the... ..or from timed client downloads.

The by@units method is preferably implemented either at  
the server or at the client, This method measures the  
35 **content** accessed by the client, For example in the case of  
instructional **materials**, the server records the spec."ic  
lesson accessed while the client records the comple-:.)n of  
- 49

exercises, In the case of on-screen agent... ..by-time or by-units methods provides  
an indication of the relative level of interactivity of the  
10 instruction, For example, during use of instructional  
**materials**, the by-interaction methods measures the actual  
usage of each resource such as agent processing,  
Usage of the different ABI elements is preferably  
metered by... ..20 elapsed-time method is preferred for graphics designers,  
while the by-units methods is preferably used to record the  
publisher and lesson for instructional **materials**, the type  
and author for tools **material**, and the creators of the  
animation and utterance for on-screen agent actions. The by  
25 packet method is preferably used to record the source of the  
network traffic such as access to the student object database  
or downloading of application software, instructional  
**materials**, or animation data snips, The preferred metering  
methods provide information needed for the typical owner  
30 compensation and user pricing models.

In its preferred embodiment... ..bil percent divided up according

to number of packets with up to  
 21 percent additional if total  
 number of packets exceed a  
 predetermined level  
 Instructional **Materials** 1cf percent divided up according  
 Providers to units  
 Calendar/Scheduler Provider Up to 1cf percent based on level  
 of interaction  
 Animation Providers 1cf percent divided... ...ABI Client/server Software Balance of  
 revenue  
 provide

### 3.0 The Instructional Interface

The ABI system has interfaces for students, teachers,  
 30 and administrative staff, **Materials** and software developers  
 can have specific ABI system interfaces. Alternatively, such  
 development can occur on separate systems followed by  
 indexing and loading of the developed... ...alternative technologies, for  
 example voice output with speech-recognition input, can be  
 used to implement this design.

### 5.1 SM(section)Many Student Screens

During **materials** presentation, a student sees screens of  
 one or more screen types, all formatted in accordance with  
 the previously described design principles. Screens are  
 structured as... ...can either be for display only or  
 permit student input or interaction,  
 An important screen type is a task screen. Task screens  
 are used for **materials** presentation tasks such as homework  
 20 assignments including problems, programmed steps, mastery  
 quizzes, and drills, Table I and Fig. 3 illustrate exemplary  
 components of a... ...In  
 general, in system area 302, the session manager presents  
 25 objects visualized as icons permitting the student to easily  
 access KBI system facilities. In **materials** area 304, object  
 presentation including description, placement and movement,  
 is specified by the **materials** designer in the presentational  
 and sequencing sections of the **materials** data. The **materials**  
 30 engine interprets these specification at run time to send  
 display objects for display, In agent area 303, agent  
 behavior processing formats predefined parametrizable  
 objects...307 1 1--Monthly Calendar Graphics  
 308 1--Clock Dynamic graphics  
 310 1--Toolbar Icons of tools (for  
 calculator, word  
 processor dictionary,  
 communications, etc.)

304 i..**Materials** Area

is 311 !--open Book Graphics of book outline

312 I 1--section Tabs Graphics with text

313 1 1--Exercise Area Text, graphics

314... ...Help

309 1 1--Sched./calendar Graphics for calendar

with text of student

schedule, icons for

scheduling options

303 1--on-screen Agent Area

1--**Audio** Synthesis of spoken

i . utterance

318 1--Text Message Text utterance

30 319 1--Visual Persona(e) Appearance integrated

with **audio**, graphics

background effects

Interaction

with other screen areas

320 @--Agent Request Agent meta-request icon,

generates pull@down

menu of meta-requests

In more detail... ...to other

reasonable file system display metaphors, Here, for example,

the book icons represent a file personal to the student, a

file holding ongoing instructional **materials**, a file of e

10 mail, and files for tools such as a dictionary and group

activity. Below file system toolbar 306 is toolbar 310... ...starfish. For example, a

dictionary represented as a semantic network might include a

node for each word with links to similar words, opposite - 54

In **materials** area 304, instructional **materials**, tools,

and communications **materials** display their **content**,

Illustrated in Fig, 3 is page 3 of an exemplary mathematics

homework. Instructional **materials** are advantageously

5 structured as a book of exercises and items, emulating

current textbook and workbook practice, In this case,

section tabs 312 permit the if the agent permits, include help and hint

requests. The format of a **materials** page is advantageously

standardized. An exemplary standardization has header

information 314, presentation 315, and interactive input area

316.

On-screen Agent area 303 allows the... ...Purpose: function of current fWhat is this for?,  
lesson

is

Resources: assistance available fI need to hint,, 'I need  
at this point help.'

The instructional **materials** notations provide a framework for the agent software to keep track of the relative position of the student in the lesson. This same information... which importantly have multi-media structured into personae. 2S Illustrated are text message 318 and visual persona 319 that typically includes animation. Also possible is **audio** output, either text-to-speech or generated from **audio** files.

Fig\* 4 further illustrates an exemplary screen interaction between the **materials** and the agent. Fig, 4 30 shows only the **content** of **materials** area 501 and on-screen agent area 502 of the complete display screen of Fig. 3. A mathematics homework **material** is displaying item presentation 503 with input selection buttons. The student has selected wrong input button 504, At this educationally significant 3S event, the **materials** send to the agent several messages generated by notations in the **materials** data. In response, the student's agent has chosen to act as illustrated. First, - 56

it displays text 506 of the rule violated by the student answer, This text was sent to the agent by the **materials** in an event message for its use. Second, the on-screen agent points 505 to the screen location of the error. This 5location was also sent to the agent by the **materials**. Third, perhaps in response to a previous high or increasing error rate of the student, the on-screen agent presents a meta-

response 508 commenting... nature of the student's error. Further, it activates a persona 507 to 10 engage the student's attention, This persona can advantageously include animation, **audio**, and speech output of the displayed text. Thus, the agent software integrates speech utterances, visualization, display of text and graphics, and animation into a persona... types appropriate to their nature, such as a calculator image.

Choice screens can be used at the transitions between instructional sequences, They summarize what instructional **materials** have just been completed, announce status 25 information, and list any **materials** choices now available to the student, These choices can related to instructional **materials** to be undertaken next or to optional, non instructional **materials**, such as exchanging credits for time in a game room, access to e-mail, and so forth, that can be 30 available to the student... or other user of the ABI System are preferably classified as requests, meta-requests, or

35 data. A student request is an input directed to **materials** or to the system seeking a specific action. Student data is an input responding to a system request for information. For 57

example, student requests include an input to the system to start the calculator is a request, or an input to certain **materials** to submit completed homework to the teacher.

However, input of numbers into the calculator is data. This 5 invention is adaptable to a further particular... educational event. Meta-requests are inputs directed to the agent seeking specific actions. For example, student input to the agent seeking hints during the current **materials** is a meta-request,

Displays produced by this invention are preferably 15 classified as applications, responses, meta-responses, or questions. Application display occurs upon system initiation of an available **material**, for example, an instructional **material** or a tool. Application display usually occurs in response to a student request, but can also occur on system 20 initiative. For example, the agent can request the system to make a tool available to the student, Responses are all displays produced by **materials** or by the system. For example, responses include **materials** presentation display and display on the adequacy or correctness of student input.

25 Meta-responses are all displays produced by the agent. These can be synchronous, generated by responses to a student meta request, or asynchronously, generated by events sent to the agent from the **materials**. Questions are a particular form of response or meta-response which seek further student input.

30 Questions engage the student in a form of a... its observation of the student's current situation and its - 58

contact with past student history, is able to guide the student better than the **materials** alone, which are only aware of the current context. This display is individualized to the student's current and past performance and preferably Suses realistic... message at the arrow's tail leads to the message at the arrow's head,

This illustration begins with response 402 from the mathematics homework **materials** suggesting that the student use the calculator tool, The student responds with request 15 403 which selects the calculator icon to request the calculator. Calculator... response was apparently not sufficiently

20 informative, and data 407 is a repeated incorrect input to the calculator tool, The student's agent observes the **course** of this interaction as the calculator tool sends event messages to the agent. Upon observing the repeated wrong input, the agent intervenes with a asynchronous... ...for consideration an entirely different approach to correct the student's recent error,

### Se3ela3\* System Responseg

The following general principles preferably guide system and **materials** responses and agent meta-responses, First, some display is to be made on every user input, if only to echo a character or mouse...one adaptable aspect is the language level and the language of system responses - for example, the vocabulary and language of help services, messages, and **tutorials** - is preferably adjustable. Another important adaptable aspect is the type of personae of the on-screen agent is preferably adjustable. The types of encouragement, meta-response selection is preferably shaped in view of the student's past baselines of speed, performance accuracy, modality, as specific to the type of **materials**. Moving average functions, in which recent values are given higher weight than earlier values, can be used advantageously to generate baselines of performance and... ...hint but with remediation. The rate of prompts, advice, and hints should be adaptively adjusted on the basis of ongoing performance records,

The actual **content** of a meta-response can be adjusted to the current situation by filling in parameters from event messages sent from the **materials**. See infra. The Instructional **Materials** Interface Standard (IIMIS11) is a key element in providing information to the student in response to inquiries such as "Where am I?". The system then...of lessons and specific notations for prerequisites. Temporal requests use notations of expected time together with profile information on individual performance on that type of **material**.

Typical predefined graphical response templates include road maps (perhaps in the form of a train and subway map), charts, table, graphics and icon flow... ...data both from school-student areas and from the student's personal schedule areas.

1, Schedule reminder responses, which remind the student of deadlines for **materials** tasks in the system or for external activities, such as getting a parent's approval for a class outing.

2, Task sequencing suggestion responses... ...3, Timing estimate responses, which estimate how long a

35 task will take based on timing information entered as part of task in the instructional **materials** and on past relative performance for this student,

- 62

In one embodiment, the ABI system provides for of scheduling initiative to be divided between the... ...scheduling control, Sable to initiate and to exit any activity at will, and limit, at the other extreme, the student to work on only those **materials** that the system schedules, These schedule parameters include those controlling ...5actions, The teacher customizes the ABI system by initializing and supervising school-student area and student data object parameters, assigning and prioritizing assignments, and customizing **materials**. Important teacher activities are included in the following list.

1, The teacher initializes and exercises continuing control over important data in the school-student data... ...agent personae.

2, The teacher controls the student's use of the ABI system by assigning, scheduling, and prioritizing the student's access to the **materials**. This is accomplished by teacher control over the schedule subtype in the school 20 student data areas, For example, the teacher can schedule tasks that must be completed on the ABI system, schedule nonsystem tasks, remove tasks or modify their priorities.

3. The teacher can customize **materials** available to the students. The extent of routine customization includes 25 modifying sequencing of instructional lessons, elements, and items, choosing the homeworks the student must...for the teacher and the student, The homework assignment can be graded by the ABI system, if answers were provided as part of - 64

homework **material**. The teacher can add comments for the student, if homework is viewed online by teacher.

The system can advantageously also provide the teacher with summary... ...can be a student. A teacher 15 can benefit from training in the use of the ABI system in general, in the procedures to customize **materials**, and in the characteristics of the particular **materials** used in that teacher's class. This training can advantageously be

packaged as instructional **materials** directed to the teacher  
20 which are otherwise similar to student instructional  
**materials**. In this case, the teacher, like the student, has  
accessible **materials**, a teacher data object recording the  
teacher's progress and pedagogical characteristics, and an  
agent using this data object to guide the teacher's training  
25... ..have privileged access to certain  
data items in the student and teacher data objects and other  
system data, which permits them to assign students to  
**courses**, to assign students to teachers, and to establish  
instructional performance standards and criteria which the  
3S students must meet to complete their **materials**. This staff  
can also receive online or paper reports on the progress of  
65  
students in the schools, the effectiveness of teachers, and  
the usefulness of the particular **materials** assigned.

#### RORorts and queries

Generation of reports from databases, either relational  
or object-oriented, is a standard programming task. The key  
elements of this task...methods. For example, they can  
efficiently compare the effectiveness of various educational  
paradigms in certain instructional contexts by receiving  
35 reports relating to students pursuing **materials** constructed  
according to the paradigms of interest,

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### 3. Instructional Designer-System Interface

#### Designer Interface overview

**Materials**, in particular instructional **materials**, are  
authored by instructional designers. Authoring of **materials**  
5 can be done on the system on which the **materials** are to be  
used, or alternatively, on a separate system. Generally, an  
instructional designer authors **materials** including, for  
example, computer assisted instruction as known in the art,  
computer assisted exercises such as homework or simulation,  
and computer managed student instructional tasks which can  
involve work with several **materials**. For all **materials**, the  
student's agent must be informed of the sections-completed  
and skills acquired in standard formats,  
is Designer Interface Details

The ABI system provides an environment in which the  
student's agent is available to control **materials**  
presentation and guide the student to improve educational  
outcomes. This environment includes facilities to present  
assignments, assess responses, probe for prerequisites, offer  
assistance with tools... ..fixed length or interactive

rather than prescriptive, Advantageously, the system structure can accommodate existing forms of computer assisted instruction by embedding such existing instruction in **materials** of this invention which contain notations and generate agent event messages,

All authoring information below can be provided by the instructional designer, if preferrel, In... ..make various degrees of customization. In this  
67

section, the term "exercise" means a single unit of an instructional task,

The run-time conversion of **materials** with descriptions of text, graphics and animation advantageously is performed 5by methods commonly used in interactive ...described sequentially to include the steps of, for example, defining the task, defining each exercise, judging student inputs, defining exercise completion, and 25 augmenting the **materials** with notations for the agent.

In the authoring step of defining the task, the instructional designer advantageously provides information including initial instructions for the entire task in a written and preferably also a spoken format with alternative 30 wordings as necessary for special classes of students. The designer also provides **materials** sequencing in accord with the education paradigm chosen, Instructional sequencing is appropriate for interactive instruction with feedback, Homework sequencing can include a fixed order; a...for a particular  
- 69

implementation of this invention. Thereby, the agent can monitor the student's pedagogic characteristics in a uniform fashion across all standardized **materials**. Accordingly, a first step in input judging can be, where appropriate, 5checking the data type and perhaps range of an input, For example, checking that... ..Turning to the authoring step of defining task 3S completion, the instructional designer advantageously provides information including standards for input, exercise, and task completion. The **materials** can require a certain  
- 70

minimum completion before allowing homework submission to the teacher.

The final authoring step is augmenting the **materials** with additional notations for the agent. These notations 5concern task and exercise subject, skill classifications, and definition of the educational paradigm embodied in the sequencing logic. It is performed by instructional designers or knowledgeable teachers, and is expressed as notations in

the **materials** that generate event messages for the agent and 10 that reference control parameters set by the agent for control of **materials** sequencing. The notations so entered communicate various types of information to the agent.

Exemplary types include characterization of assignment by type of task, subject, elements...if

15 needed, For example, all OS task creation is processed through an ES task control facility to insure that the student accesses only permitted **materials**, The ES software also provides a preferred animation facility and controls client startup.

session and screen manager 603 is always present on a client system... ...preferably including ABI system data relating to the agent's model of the student, to the student's current instructional state, and to the instructional **materials**

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themselves, is preferably accessed as previously described from portable media, ...determined from the student's past performance and stored in the student data object, in order to determine whether certain activities, such as particular instructional **materials**, should be automatically started by the ES without any student intervention. In cases where the student is 35 permitted greater initiative, the schedule/calendar can... ...do next.

It uses priority and deadline information and time-for-completion data computed using data in the instructional 5materials and student data object,

The **materials** are represented in the ABI System by **materials** engine 604 and **materials** data 605, As previously described, the **materials** data comprises objects for display output or student input, sequencing logic controlling object 10 display, and notations which when referenced by the sequencing logic during object presentation generate event messages for the agent, **Materials** data is advantageously grouped into "entries" comprising those objects, logic sections, and notations related to the display of a single 15 screen or a few screens related to a single educational item.

The **materials** data also preferably include a special header or initialization entry with important notations that communicate to the agent the educational paradigm adopted by these **materials** and can inform the agent of the control 20 variables to which it is responsive. Such header or initialization messages are also preferably sent to the agent

if the **materials** change their education paradigm. In a preferred embodiment, there is one common **materials** engine 604 which presents a plurality of **materials** data 605. In 2S alternative embodiment, there can be specialized **materials** engines for various classes or types of **materials** data.

**Materials** engine 604 downloads the entries of **materials** data 605, interprets the sequencing logic, displays objects as requested, and references embedded notations generating 30 the requested event messages to the agent. Standard facilities of the OS and ES are used for object presentation and for routing any input to the **materials**. Input is processed according to specifications in the sequencing logic. In a preferred embodiment, the agent controls the 35 **materials** by setting shared global variables which the .sequencing logic checks. Such shared global variables can be made available by OS inter-process communication (IIPC")  
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facilities, such as shared memory. The **materials** engine can be any program implementing these requirements, in particular an extension of available commercial authoring tools and engines, such as Macromedia's Authorware.

In an alternative embodiment, the **materials** are not separated into an engine and a data component but consist of one unitary component for each **material**. In this embodiment, a process similar to compiling creates a single executable **materials** component. This invention is equally adaptable to 10 other implementations of the **materials** that generate agent messages and are responsive to agent control according to the requirements outlined herein.

Agent processing is divided into two components, agent... ..action processing is rule based and event driven. Rules in 20 rules tables 610 are evaluated using parameters both communicated in event messages from the **materials** or the student and retrieved from the student data object. These rules propose candidate actions and then weigh and select a final set of agent actions from the candidates, which are 25 communicated to subsequent agent behavior processing 612.

Agent processing also sets global variables for **materials** sequencing and control. A side effect of this processing is the updating the student data object with information from the **materials** event message, Agent behavior processing 612 constructs an on-screen

agent display based on the actions determined in agent action processing. In a preferred embodiment agent behaviors, Also illustrated is communication **materials** 615, These **materials** manage and provide resources for various group activities, such as student tutoring, group work with particular **materials**, and group contests. As indicated by 10 arrow 614, these **materials** access data subtypes preferably stored in school-student data 615,

5\*4\*2\* The Executive software

The executive software ("ES") collects together a number 15... ..with URL name resolution. It

10 maintains all necessary network sessions, including sessions with the major classes of servers, including executable software servers and instructional **material** servers, In the case of portable student data objects, communication is also maintained with the registry function. In case of downloaded 15 student data objects... ..includes input and output display handlers for object level display I/O. The display handlers receive object level requests for text, graphics, video and 25 **audio** and translate then into whatever interface is supported by the OS, The input handler receives low-level inputs from the OS input handlers and processes...the object, An example of such an object specification includes a selectable text field object with specified contents, perhaps scrollable, displayed by a particular instructional **material**.

Exemplary specialized ES facilities are animation and client startup. It is preferable that the client system support animation, which is a connected and timed sequence...student data object and receives

input from the system area of the display. The 15 schedule/calendar in cooperation with the agent then determines what **materials** the student is to be presented with or can select from, Finally, the **materials** data and engine are then downloaded and the substance of the student session commences.

Presentations of personae or merely appropriate coherent responses can be created from **audio** and video display objects downloaded from a server and referenced upon demand. These display objects, or data snips, can be linked into groups corresponding to...can be entirely processed by the I/O handlers, and-system waiting resumes at 701, If the event represents a student'request - 80

for the **materials** engine 703 or a meta-request for the agent

711, the I/O handlers format it appropriately and communicates it to the correct component owning that input object. If the event represents a time interval set by one of the **materials** engines or by the agent, it is formatted and passed to the requesting component. In the case of group local I/O handlers, The I... ..action or time interval along with any input information from the action. One input event can generate several events 15 messages, Herein, messages directed to **materials** engines 703 are considered first; messages directed to agent action processing 711 are considered second. Although Fig, 7 illustrates two **materials** engines, one engine or more than 20 two engines are possible on a system from time to time.

Regardless of the number of **materials** engines present, event messages are communicated to the correct engine. The **materials** engines 703 process a plurality of read-only **materials** data 704 representing instructional **materials**, 25 tools, and communication **materials**. As indicated by arrow 725, these engines also access control information determined by agent action processing 711, This control information can be accessed in any convenient manner, such as by an exchange of messages or by referencing parameters stored in a shared 30 memory region. This information controls the **materials** engines at educationally significant points during their **materials** presentation, Optionally, **materials** engines 703 can also access remote databases 705 and other remote resources available through the system network, The engines 35 use these two sources, and... ..educational context, This presentation uses the I/O handler of the ES and OS to generate actual student display.

As indicated by arrow 727, the **materials** engines also 5 generate messages directed to agent action processing 711.

At educationally significant points during **materials** presentation, notations in the **materials** cause the engines to format a message to the agent, These messages also include an indication of event type and relevant data, perhaps 10 including timing data. One student input can generate several agent messages, At points which are not educationally significant, the **materials** can not generate agent messages. Thus, the system can wait again for the next student action at wait point 707 if the previous student 15 action had either no input significance for the **materials** or

agent or no educational significance for the agent.

However, if messages have been sent to the agent, agent action processing 711 is activated, In... ..data on the student's current performance and behavior, as

indicated by double headed arrow 728, They can also make available control information for the **materials**, as indicated by arrow 725. Finally, and importantly, the actions can include display actions for causing visible agent behavior, 35 The list of final display... ..of the student input action, the system now waits at wait'point 717 for the 20 next student action or time interval.

#### 5e5e The Instructional **Materials** And The Tools

This section describes a preferred embodiment for the instructional **materials**, the student tools, and 25 communications **materials**. In this embodiment, the **materials** have a uniform structure, being defined by **materials** data which is used by the **materials** engine to appropriately generate displays and perform functions, This uniform structure permits a uniform handling of the interface between 30 all the **materials** and the agent, In alternative embodiments, certain tools and the group communication **materials**, for example, can be advantageously separately implemented as separate programs that themselves maintain the necessary agent interface, Such certain tools include a calculator, a dictionary, an encyclopedia, and group communications. In further alternative embodiments, eac'A,-l instructional **material** 83

could be a separate program that also maintained the necessary agent interface,

This section first describes the general structure of the instructional **materials** and then describes the tools 5 typically available on an ABI system.

#### S\*Seia The instructional **materials**

In a preferred embodiment a common **materials** engine interprets specific **materials** data to perform instructional 10 and tools functions, These are described with reference to instructional **materials** with adaptations needed for the other **materials** noted. Turning first to the **materials** data, in the preferred embodiment it includes three principal sections for presentation items, sequencing logic, and notations. The 15 presentation items include whatever is displayed, preferably represented as display objects, which can be parametrized.

These display objects can be packaged with the **materials** data or can be downloaded from a server on demand. The notations contain additional data related to the **materials** display.

20 These include, for example, prerequisites, links to related **material**, expected student performance, and help and hints.

The notations are preferably generated from templates referencing parameters from the **materials** data and student performance inputs. The **materials** engine uses notations to 2S generate messages to the agent, which comprise one part of the agent interface, The sequencing logic is executable or interpreted code that animates the particular **materials**. It references all data in the particular **materials** to cause the ordered display of the presentation items and to send 30 messages to the agent according to the notations, The **materials** data is advantageously grouped into entries, each entry representing a minimum item of presentation, which can, however, involve several screens.

These entries are preferably specialized at least into a 35 header or initialization entry and the other entries. Table 2A illustrates a typical **materials** header entry which is the first entry processed when the **materials** are initialized.

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#### TABLE 2A: HEADER ENTRY

Instructional

Header Entry

Presentation Sequencing Logic Notations  
items

Global variables; Prerequisites for

Global functions; **materials**;

Local variables; Reference to other

Local functions; **materials** or standard  
texts,

Agent initializing

information including.

- meaning of global  
variables;

- education paradigm  
adopted

available helps, tools

This header has several particular features. The sequencing... ..seeding rate, the density  
of new

25 examples, the time pacing, or the difficulty of discriminations, Local variables are available to the sequencing logic during **materials** processing. Global functions are those global system functions that can be called by the sequencing logic. Also, dictionary lookup, 30 spell checking, or encyclopedia lookup...available locally to the sequencing logic. For example, in a scientific calculator tool, computations can be local 3. functions, For a further example, in instructional **materials** the local functions are available for checking user inputs for correctness, scoring quizzes, and so forth.

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The notations in the header entry generate **materials** initialization messages to the agent. These messages inform the agent about these **materials**, about what global variables they respond to, about what helps, hints, and tools are 5useful, and importantly about the educational paradigm the **materials** use. Preferably, information about this paradigm is structured according to the instructional **materials** interface standard, See infra, The notations can also contain additional information, such as prerequisites for the 10 whole **materials** and references to other **materials** and texts.

Finally, the presentation item can be, for example, an introductory screen,

Table 2B illustrates a typical entry which is processed during regular **materials** presentation, is

#### TABLE 2B: MATERIALS ENTRY

Instructional

Entry N

Presentation sequencing Logic Notations items

Display Interpreted or Prerequisites for frame; objects, executed control Expected timing, and possibly statements difficulty; including referencing Relation to other frames; those for variables, Links to other **materials** text, notations, and and sources.

graphics, any student Changes to agent sound, input, and initializing information; animation, or causing display Student performance data; video of display Student error data objects and

execution of

Inotations

For this entry, the presentation items are those for the **materials** display. The sequencing logic causes this display in view of the variables and other information in the **materials** data and any student input. Finally, the notations result in agent messages reporting changes in any parameters set at initialization, student performance data, student... ..and other educationally significant information. The notations can also contain information specific to this frame, such as expected difficulty and timing.

Turning now to the **materials** engine, its first processing step is to request the executive software to download the requested **materials** data from the instructional **materials** server. It next processes the header entry, 1 links to global variables and functions, and sends initialization event messages to the agent. When presentation begins, it... ..the sequencing logic on the first frame. From this frame it proceeds to activate other frames as directed by the sequencing logic. Lastly, when the **materials** processing ends, any termination messages as directed by the notations are sent to the agent and the 15 **materials** are deleted from the client.

In a preferred embodiment, the **materials** are all implemented similarly. Most differences between the instructional **materials**, tools, and communication **materials** are in the presentation items and the sequencing logic, 20 including different global and local entities. All **materials** are expected to have notations for generating agent messages that record **materials** initiation and termination and student performance and errors. Preferably this information is reported in a standardized manner according to an 25 instructional **materials** interface standard, See infra.

5e5\* ...Tools

The ABI system is adaptable to a wide range of necessary and optional student and teacher tools tailored to the 30 students and the **courses** of instructions. In the case of elementary education, the following preferable tools include certain general tools and the communication, or joint work, **materials**. In the case of commercial education, other tools can be preferable. The schedule/calendar tool participates 3S in permitting access to **materials** according to student schedule and is preferably found in all embodiments.

The discussion in the section is directed to an implementation for elementary education... ..of and access to the system file system. This particular tool is advantageously implemented as part of the session manager 10 and not as a **material**. with that implementation, customized iconic file representations are managed as part of the system area of the display,

One embodiment of such a file system pages and sections from book to book. A page of a book, a

file, is preferably presented with the **materials** that process it, For example, user-created text or graphics pages appear with the word processor active. Homework and instruction 30 pages appear with the appropriate **materials**.

#### 5\*5\*2e3e The Scheduler/Calendar Tool

The schedule/calendar is an important tool and is preferably always present. It is accessed when the ABI 35. system initiates **materials** to verify the student is permitted and scheduled for this **material**, and also invoked when the system terminates **materials** to schedule new **materials**. it is 89

accessed as a global function by the agent in response to a meta-request from the student seeking scheduling assistance.

Further, it... ..5 message;

Activity priority;

Deadline date and time, or a definition of a perpetual activity, which has periodic requirements but no completion date;

Link to **material** for the activity which in turn can specify activity completion criteria; for activity of a single student this is typically a particular instructional **material**; for group work activity a list of the students for the group and other communication information can also be in the calendar entry;

Activity characteristics... ..be directed by the teacher to permit the student a range of scheduling 5initatives, These initiatives can range from permitting the student freedom to schedule **materials** as desired to requiring the schedule/calendar tool to enforce a fixed order of student activities. In a preferred embodiment this is accomplished by the...student, or by the agent. As previously described, at the beginning of a student session 20 or after termination of the use of a particular **material**, the

executive software invokes schedule/calendar tool, first, to mark the terminated task complete, and then, to reference the calendar data in view of the... ..expected time to complete each task based on student performance from the student data object and the average time required for each task from the **materials** header, In view of 10 this combined information, the agent can present to the student an ordered list of activities scheduled according to their expected time to complete,

#### S 2.4, Communications Tools and Group Work **Materials**

In a preferred embodiment, the ABI system includes communication, or group work, **materials** integrated with the remainder of the system. As for other tools and **materials**, access to communications **materials** is granted by the scheduler/calendar tool. Communication work groups are 20 assigned and scheduled in students' calendars with calendar entries preferably including the group members names and other communication parameters, When these **materials** are activated by the scheduler, the communication group is begun.

Alternatively, students can spontaneously request the 25 formation of a communication group by the selection of a communication **material**, The scheduler/calendar tool can permit group activation if the students have no other required activities, Alternatively, each particular communication **material** can also have specific access controls 30 preferably set by the teacher that control the types of communication permitted and with whom the communications is permitted,

In manner similar to other tools and **materials**, the communication **materials** have an agent interface, Upon 35 activation, they send initialization event messages to the agent specifying the global control variables they will be sensitive to, the educational paradigm-adopted, and available - 92

hints, helps, and other communication parameters, In alternative embodiments, the instructional **materials** interface standards include special categories for communication based work that enable the agent to control 5 these **materials** with specificity, During communication work, these **materials** generate event messages at educationally significant points.

Thereby, communication **materials** are fully integrated into an ABI embodiment. Further, in a-preferred embodiment, 10 communication **materials** are implemented in a manner similar to other **materials**. First, each communication **material** has a

particular communication task specific for that communication **material** or form of group work, The communication task manages the network interface for that particular type of 15 communication or group activity by using the... ..as global functions for access through an ABI system. Second, these functions are made available to the student in a manner similar to other 20 **materials** through particular **materials** data that includes presentation items, sequencing logic referencing these global communication functions, and notations generating event messages for the agent, In an alternative embodiment, the communication **materials** can be programs, independent of the 25 **materials** engine and perhaps part of the associated communication task, which internally generate the necessary agent event messages. In either embodiment, communication **materials** tasks can be written either in the ABI implementation languages, or in a special purpose 30 communication scripting language.

The particular communication **materials** in a preferred embodiment provide forms of group work or communication including e-mail or message exchange, linking student groups for joint work on **materials**, and structured joint work such 35 as contests with rules, Each of these forms of group work or communication is described in the remainder of this section.

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A first form of group work implemented by communication **materials** is E-mail and newsgroups. These are useful for teachers to send information to their classes, such as schedule and **materials** changes and to communicate with absent 5 students, Teachers can also exchange information with each other or obtain help for system and other issues. Students... ..fourth step in linking is orderly disconnection from the linked group.

Linking can be implemented in alternative fashions. In all implementations the communications tools and **materials** for linked activities are integrated with the other components of an ABI system in one of the ways previously 15 described, A simple implementation is to provide on each student's screen an icon and a message area for each linked student, Alternatively, one or more shared **materials** areas can be provided. Communication can be distributed through a single server task to which all linked students connect, A more advanced implementation of linking... ..with each other within \*rooms' each set aside

for a specific topic and forming a dynamic newsgroup.

Another form of group work implemented by communication **materials** is structured linking. Important examples of structured linking in which the students have different or structured roles are educational contests. Exemplary of such contests is a spelling bee, an exemplary embodiment of which

is described herein. In this embodiment, the spelling bee is managed by a server communication **materials** task, called the server spelling bee task, which preferably is executed on a server system, which communicates with local spelling bee tasks on the involved... provides for orderly termination of the spelling bee, The local spelling bee tasks provide the communication functions accessed or required by the spelling bee **materials** data, which are scheduled or selected to invoke spelling bee participation, on the client systems. These **materials** also send event messages to the agent and are controlled by the student's agent. Alternately, the local spelling bee tasks can be programmed to communicate with the agent and perform the spelling bee without **materials** data.

In more detail, the spelling bee tasks carry out the following steps. The spelling bee server task is started at a teacher's...local task echoes the word sent, preferably by requesting the on-screen agent voice the words as utterances with an appropriate affect. The spelling bee **materials** inform the student's local agent of the student's progress and performance in the spelling bee **materials**. The server task accepts input from designated user's local task and broadcasts it. The server task judges and reports on correctness of completed responses... interface, agent processing, and agent adaptivity. The agent comprises the student data object which contains data on the student's performance on the various **materials** and data on the student's pedagogic model. Other system components preferably have an interface to the agent in order that the agent can control the **materials** and guide the student in a uniform manner. Agent processing is divided into two phases, agent action processing and agent behavior processing.

Finally, agent... to a client system and the identity of the student is checked by access methods. Further, during system operation, each element of software of **material** that directly or indirectly, through the agent, seeks access to the portable student data ...other educational provider can keep student related data in

school-student data areas, This data includes information specific to a school, such as specific **course** or educational progress data, school schedules, etc., and is maintained in accord with the school's data retention and privacy policies.

30 School-student data... ...only one school, as in primary or secondary education.

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For compactness of description and not by way of limitation, the following description of the **content** and operation of the student data object is according to such alternative embodiments, In the accompanying figures, data 5 subtypes or fields that can be... ...data

1102 and methods 1103 for accessing and updating this data, Both agent-specific and school-student data is divided generally into global data 1104, **materials** related data 1105, including tool related data 1106, current lesson data 1107, and log data 1108,

Global data, defined to be information meaningful across ABI **materials**, includes such subtypes as system data, agent behavior preference data 1109, agent student model data 1110, and schedule data 1111, System data includes student identifiers to **audio** behavior

and text production, The summary of past agent behaviors is 99

used to aid in the selection of reasonably varied future multi-modal behaviors... ...includes items modeling the student's persistent behavior which the agent uses to individualize its interactions with S the student, Such data items can include **material** retention rate, hint effectiveness, and preferred rewards. Further data types in an agent student model can include measures of a student's intelligence, temperament, personality... ...unchangeable by the student, and is typically school-student data. Data for each schedule item 20 can include due dates, reminder alarms, and priorities.

Each **course** in which the student is currently enrolled has a separate **materials** related data area 1105 for the **materials** providing instruction in this **course**, and includes both agent-specific and school@student data. In an exemplary 25 embodiment, this latter data subtype includes standard and criteria data, usually set by the school system, which include objectives and standards the student must meet in the particular **course**, and milestone data establishing objectives already met by the student, Such information is typically 30 school-student data. Information relating to a student's

progress, performance, and use of tools is typically agent specific data. Progress data includes data necessary for the student to leave the **materials** and resume the **materials** at the prior point. Performance data 1112 relates to student's 3S performance over several lessons in the **materials** and can include mean performance, weighted moving averages of performance, patterns of performance, use of hints, use of

- 100  
retries, and needed remediation. Using such... ..such as the calculator, dictionary, and word processor. This

data usually includes only milestones and performance information,

For example, in the case of a reading **course**, agent specific data can include reading speed attained, vocabulary level achieved, and sentence complexity recognized.

The status of each lesson presented by instructional **materials** is accumulated in current lesson data 1107, which is preferably agent-specific data\* This subtype is created upon lesson initiation and deleted upon lesson completion...time to complete lesson segments and weighted moving averages of such times - work areas in which the agent can store information particular to the instructional **materials** - such as parameters to use in forming multimedia presentations - and lesson coaching parameters 1113. The lesson coaching parameters are used by the agent to provide feedback to the instructional **materials** so that their presentation can be individualized according to student performance. These parameters are governed by the instructional modalities employed by the particular instructional **materials** and can include values such as the seeding rate of new concepts, time pacing of the presentation, the density of examples, and the ratio of... ..actions from agent behavior processing. Preferably, this data is used to generate reports for teachers, administrators, and parents. It is also of use to instructional **materials** authors and educational researchers, who can use the detailed audits of student behavior and system responses available in the log in order to improve instructional **materials** or to develop new modalities of instruction,

With its carefully partitioned and functionally defined interfaces, the ABI system is easily adaptable to new modalities of instruction as well as to merely installing new **materials**,

The student data object also includes access, data updating methods, and data query methods, The methods are

advantageously grouped in particular application programming interfaces...an update event related to the use of a tool causes changes in the relevant tool data subtype as well as the associated instructional **material** subtype, Further, when a lesson is completed, the methods executed appropriately summarize student data from the current lesson subtype into all the permanent data subtypes...of the object-oriented database in which they are stored.

Further, it is advantageous that a new student data object be initialized, Thereby, instructional **materials**-can have the advantage of an agent already knowledgeable about the student, and the time consuming and perhaps tedious process of initial agent model... ..person who is knowledgeable about the student, or who has carried out a personality assessment of the student,

#### So6\*2\* Tj;e Agent/**Materials** Interface

The structure of the interface between the agent and the **materials** is important in the ABI system. It permits a single agent to control a wide range of **materials** through which it guides a single student. The agent achieves this ...situations to determine its actions. This section, first, describes the general procedural structure of this interface, and second, describes the preferred model for the **content** of the interface. This preferred model is structured according to the instructional **material** interface standard (herein called 19IMIS91)

Communications between the agent and the **materials** is bi-directional. Events containing parameters are sent to the agent by the **materials** at educationally significant occurrences, In response, the agent sets global parameters controlling the **materials** and returns messages confirming actions proposed by the **materials**, In circumstances in which the **materials** needs to coordinate displays with the agent, it communicates synchronously with the agent. For example, when the student requests help or a hint, the **materials** can need to synchronously obtain the agent's permission to offer the help or hint, In other circumstancest the **materials** can asynchronously send informational messages to the agent.

Such asynchronous agent input and possible output can give the system the appearance of spontaneity, The agent/**materials** interface can be implemented in any convenient manner in a given OS, For example, it can be built on explicit messaging, shared memory areas, procedure

calls to a socket interface, or other technology,  
The global parameters set by the agent and which control  
the **materials** are preferably state variables that the  
**materials** sequencing logic references in order to make  
33 educationally significant sequencing decisions. The meanings  
of state variables to which a particular **material** is  
sensitive can be established at **materials** initialization  
- 106 according to specifications in a header **materials** data entry.

Examples of such variables range from simple flags, such as  
those controlling the availability of helps and hints, to  
more sophisticated parameters, such as those controlling the  
5rate of new concept introduction, the density of examples, or  
the speed of discrimination exercises.

communications from the **materials** to the agent are  
controlled by notations in the **materials** data. A notation  
includes an event type, parameters associated with the event,  
10 and the condition under which the event is constructed and  
sent. Notations are activated when they are encountered in  
sequencing logic in the **materials** data. There are two  
classes of notations, "point-wise" notations and "toggled"  
notations. Point-wise notations are evaluated exactly once  
15 when they are activated. Toggled notations are evaluated at  
each input event following their activation until they are  
inactivated by a later notation,  
Notations vary according to the **materials**. Some  
**materials**, such as simple e-mail, can contain no notations.

20 Tool **materials** can contain notations indicating only correct  
or incorrect use of the tool. Most instructional **materials**  
data contain several types of notations. Generally, the  
events generated by these notations send information similar  
to the following: number of retries, measures of rate of the relative difficulty  
of items.

Table 2C illustrates exemplary types of notations  
30 generated by typical instructional **materials**,  
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TABLE 2C: TYPES OF NOTATIONS  
NOTATION TYPE WEEK GENERATED TYPICAL PARAMETERS  
POINT@WISE NOTATIONS.

5 Lesson At start of lesson Educational paradigm used;  
initialization... ...No input event Elapsed time, expected type  
of input

inappropriate Inappropriate Number and type of  
input inputs from student.inappropriate inputs  
5\*6a2ele The Agent **materials** Interfacio Standard

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In order that the studentfs agent can act generally to  
provide student guidance and control **material** presentation in  
a manner individualized to the student's pedagogic  
characteristics, it is preferable that an embodiment of this  
invention use an instructional **materials** interface standard  
(herein called 11IMIS11). According to IMIS, it is preferable  
that the detailed **content** generated by the nr)tations and  
passed in messages to the agent be structured in a standard  
fashion according to the particular educational paradigm  
adopted by the **materials** and independent of the particular  
**content** of the **materials**. Further, it is preferable that the

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**materials** adopt one of a limited and defined set of  
educational paradigms contemplated in the standard. Finally,  
it is further preferable that the rules referenced by... ..tables and performance  
5data in the student data object be structured according to  
the standards of the IMIS, Thereby, IMIS provides the agent  
with a **materials** independent view of the student performance.

IMIS is not limited to a particular set of educational  
paradigms, Any standard set or sets of paradigms appropriate... ..limiting.

Rzemplary educational yaradig]gs

Exemplary educational paradigms, also known as modes of  
instruction, are listed in Table 3,

TABLE 3: EXEMPLARY EDUCATIONAL PARADIGM

Interactive **tutorial**

Fluency exercise

Paired association exercise

Discrimination formation exercise

Simulation exercise

Each of these educational paradigms is preferably

30 handled differently by the agent in response...embodiment of IMIS standardizes these  
educational paradigms according to three pieces of  
information: the instructional context, the instructional  
Sformat, and most specifically, the subject area. **Materials**  
notations should preferably specify all pieces for maximum  
agent flexibility, although the ABI system is adaptable to  
the **materials** specifying any number or none, If none are  
specified, agent actions are independent of the educational  
10 paradigm.

The instructional context is the specific mode of instruction being presented to the student by the **materials**.

Examples of instructional contexts are.

is TABLE 4: EXEMPLARY INSTRUCTIONAL CONTEXTS

Prerequisite

Test

Review

Pretest

New **material**

Introduction

Discrimination

Review

Practice

Fluency exercise

Review

Unit mastery test

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Within each instructional context, **materials** can adopt instructional formats, the second component of the IMIS specification. Examples of instructional formats are.

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TABLE 5: EXEMPLARY INSTRUCTIONAL FORMATS

Multiple Choice

Fill... ..of figures or text

Simulation games

Finally, student performance should preferably be stored relative to the subject area being worked on, as necessary for **course** level reporting. Thus, the third component of the exemplary IMIS is the subject area, such as mathematics or reading,

Exemplary standardization of agent data

IMIS... ..relevant to

agent action processing according to this triple of information instructional context, instructional format, subject area which characterize the education paradigm adopted by the **materials**. The following description discusses standardization of notations in the **materials**, standardization of data in the student data object, and standardization of the agent action processing tables.

Notations in the **materials** are standardized according to IMIS as follows. For a lesson, exercise, or item, each **material** adopts one of the standard set of educational

paradigms, or modes of instruction, The parameters to be passed to the agent in an event message...context and a given instructional format can be stored as templates in libraries, 30 Notations are available in these libraries to generate necessary messages at **materials** initialization and during **materials** processing. An instructional designer then need only consult these libraries to obtain the notations appropriate to the educational paradigm of the **materials** 35 being authored.

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The standardization of the student data object according to this exemplary embodiment of IMIS for elementary education is simply achieved by... ..is that of the agent action processing tables, the policy filter table, 10 the decision weight table, and the selection rules, Event messages from the **materials** inform the agent of current values for the instructional context and instructional format. Since these values are parameters available to evaluate the conditions and functions... ..processing.

Further, the IMIS standardization permits a more systematic and effective use of the mechanism which the agent uses to set global variables in the **materials**. These variables 25 facilitate adaptive adjustments of instructional parameters, such as seeding rate and amount of prompting. These variables can be more effectively set in... ..example, find complex patterns of student error

unanticipated by the instructional designer, As additional artificial intelligence methods are incorporated into the 15 agent software, new **materials** notations can be added to the notation repertoire,

### 5 3. Agent Action Processing

Agent processing is divided into ...This processing is activated when event messages 801, representing either input events sent from the I/O 30 handlers or educationally meaningful messages from the **materials**, are sent to the agent software, It transforms the input event messages into lists of display actions that activate the agent display and also has the important side effects of updating student data object 806, as indicated by 35 arrow 815, and of setting **materials** control parameters, as indicated by arrow 816, It is possible a particular input

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event can generate all or none of these outputs and side... ..806. In particular, as indicated by arrow 815, fields from the following subtypes in the student data model are referenced: the current lesson

subtype, the **materials** specific subtypes, and the agent pedagogic student model subtype. In alternative embodiments 15 where the agent interface and data is structured according to an IMIS standard, event input parameters include parameters characterizing the current educational paradigm adopted by the **materials**. These parameters can be used to select rules applicable only to this paradigm for reference and 20 activation,

Turning now to the steps of agent...complete an item or the name of the item, Each rule can be marked active or 30 inactive, possibly as a result of selection during **materials** initialization or as a result of selection according to IMIS educational paradigm parameters, Processing a filter rule consists, first, in evaluating each active boolean, and... ..actions is then passed on to - 116

action weighing 808, the next processing step. Also in the student data object, the current lesson subtype and **materials** specific data subtype are **updated**, if necessary, with data from the input event message. For example, upon item 5completion, performance results need to be updated, Action weighting 808 references decision... ..parameters, x-, with a value between 0 and 1. Each rule can also be marked active or inactive, possibly as a result of selection during **materials** initialization or as a result of selection according to IMIS educational paradigm parameters. Processing the list of 30 candidate actions consists of, for each candidate...selection criteria are illustrated in the last two rows, It is anticipated that one criteria is marked active as a result of selection during 25 **materials** initialization or as a result of selection according to IMIS educational paradigm parameters. The active criteria is applied to select zero or more final actions, Some final actions are executed locally to provide control to the **materials** by setting control parameters, as 30 indicated by arrow 816. other final actions can cause update of fields on the student data object, in particular...Second, the utterance and affect are sent to the preferred persona object where it is integrated into a 10 complete display, including animation, graphics and **audio**.

The display is preferably represented as a script which is then sent to the I/O handlers, In behavior processing, the selected affect in an...1 the student data object. The display behaviors are - 123 structured as scripts containing named display objects.

These named display objects can optionally involve voice,

**audio**, graphics, or video displays, and they are contained in scripts which can optionally specify a timed animated display or a branching display, where the branches...invention is adaptable to libraries with approximately 1,000 entries of responsive behaviors.

In implementations of this invention, it is important  
15 that the actual **content** of the utterance tables and the display tables and libraries be sufficiently creative and current to engage the student, Therefore, this **content** is preferably created by artists, animators, writers, and other creative talent, These elements of sound, voice, animation,  
20 graphics and video are collected into libraries of data snips and stored in archives, Further, it is preferable that these tables have an extensive and varied **content** in order that agent displays repeat only infrequently.

Turning now to the process of generating a complete  
25 agent display behavior, the steps of this...s characteristics, Narrow candidate utterance including grade level, template and candidate language ability, display preferences, and so forth  
Previous student In alternative embodiments, interactions with **materials** utterance and display can or agent relate to previous interactions  
Previous utterances in this Selection of different session utterance template and slots  
is Previous displays... ...agent's knowledge of the student is represented by data in the student data object, in particular in the student pedagogic model, which stores general **materials** independent data describing how the student learns,  
30 and in the **materials** specific student performance, which stores performance data specific to particular assigned **materials** and **courses**. As the student interacts with the system for instruction or homework, the agent receives event messages, which describe the student's learning and  
35 performance... ...past behavior.

Thus, the pedagogic model includes, for example, data weighted moving averages of the rates that the student learns discrimination of a certain complexity, **Materials** specific performance includes, for example, weight6d moving averages  
10 of data on the student's response time and response latency.

In alternative implementations, agent adaptivity... ...thereby offer appropriate guidance.

Further, this statistical data can optionally include correlations between the agent data, such as between various pedagogic parameters and various **materials** parameters. In this manner, educational situations can be classified more finely than "normal" or "abnormal" into, for example, "abnormally slow on this fluency drill in...tool can be used to determine areas of current interest. Interest can be directly entered by the student, parent, or teacher. Alternately, student interest in **materials** can be inquired for when the **materials** terminate. After an assignment, the student could provide semiotic feedback by selecting from a row of faces with different expressions. Alternately, the student can...

### Claims:

...instruction of a student over a plurality of instructional sessions, said method comprising: (a) presenting interactive instruction to said student by executing one or more **materials** on a computer accessed by said student for a current instructional session; (b) monitoring said interactive instruction of said student during said current instructional session... ...said student.

2 The method according to claim 1 further comprising after said step of monitoring a further step of controlling said one or more **materials**, said controlling responsive to said monitoring of said student during said current instructional session and to said stored information responsive to said monitoring of said student during previous instructional sessions, and wherein said one or more instructional **materials** are responsive to said controlling whereby said interactive instruction presented by said system is individualized to said student,

3 The method according to claim 2... ...claim 2 wherein said step of monitoring further comprises monitoring pedagogic characteristics of said interactive instruction of said student by said one or more **materials**, and said step of controlling further comprises controlling said one or more **materials** in order to present interactive instruction with said pedagogic characteristics,

5 The method according to claim 4 wherein said pedagogic characteristics are selected from... ...said step of monitoring further comprises monitoring according to an instructional context and an instructional format adopted by each of said one or more **materials**.

7 The method according to claim 2 further comprising before said step of controlling and said step of outputting a further step of generating...claim 18 wherein said step of outputting said selected display behavior comprises outputting one or more modalities selected from the group consisting of text, voice, **audio**, animation, video, and preformatted animated sequences,

23 The method according to claim 18 wherein said selected display behavior comprises one or more persona.

24 The method according to claim I wherein said one or

15 more **materials** is a plurality of **materials**.

25 The method according to claim 1 wherein said one or more students is a plurality of students.

26 The method according to claim 1... further comprises monitoring pedagogic information describing the pedagogic characteristics of said student in a manner independent of the subject matters of said one or more **materials**.

27 The method according to claim 1 wherein said step of monitoring further comprises monitoring progress and performance information describing the progress and performance of said student in said interactive instruction presented by each of said one or more **materials**.

28 The method according to claim 1 wherein said step of storing further comprises storing said information responsive to said monitoring in one of one... being uniquely associated with exactly one student of said one or more students,- 135 , The method according to claim 1 wherein said one or more **materials** further comprise a **material** engine and one or more **materials** data, and wherein said step of presenting interactive instruction by executing one or more **materials** further comprises executing said **materials** engine which references said one or more **materials** data.

30 The method according to claim 29 wherein said **materials** data further comprise notations, and wherein said step of monitoring further comprises said **materials** engine referencing said notations in order to generate monitoring information.

31 A method of operating an agent based instruction

15 system for interactive instruction of... more students, said method comprising: (a) checking the authority of one of said students to access said system for interactive instruction by one or more **materials** at a computer, said computer being one computer of a plurality of computers interconnected by a network; (b) loading to said computer software and data for said interactive instruction; (c) executing said one or more **materials** on said computer for presenting interactive instruction to said student; and (d) outputting information on said computer to guide said student in said... of said student,

33 The method according to claim 31 further comprising after said monitoring step a further step of controlling said one or more **materials** to present instruction to said student that is responsive to said monitoring information, whereby said interactive instruction presented by said system is individualized to... software is correctly identified as software that correctly maintains said model.

38 The method according to claim 31 wherein said one or more **materials** comprise a plurality of **materials**.

39 The method according to claim 31 wherein one or more of said plurality of computers are configured as one or more server computers for... claim 42 where said one or more output modalities are one or more output modalities selected from the group consisting of text, graphics, speech, **audio**, animation, video, and pre-formatted animated sequences,

44 The method according to claim 42 wherein said step of outputting selects said output modalities to output one or more persona or personae responsive to said interactive instruction.

45 The method according to claim 42 wherein said

output modalities further comprise **content**, and said step of- 138outputting information further comprises a step of loadingsaid **content** to said computer.

46 A method of operating an agent based instruction

5 system for interactive instruction of one or more students over a plurality... ..or more students, said system comprising:(a) one or more computers having interactiveinput/output devices and interconnected by a network;(b) one or more **materials** executable on said one or more computers, each said **material** for presentinginteractive instruction to said one or more students and forgenerating monitoring information that monitors saidinteractive instruction; and(c) one or more one of said agents, each said agent comprising(i) action processing for controlling saidone or more **materials** to instruct said associated student,S said controlling being responsive to said monitoringinformation that monitors said interactive instruction of said associated student, and(ii... ..said students is individualized to each student.is

52 The system according to claim 51 further comprising executive software for interfacing said one or more **materials** and said one or more agents to said one or more computers and to said network.

53 The system according to claim 51 wherein said network is configured to permit any one of said students to access any one of said one or more **materials** from any one of said computers.

54 The system according to claim 51 wherein said network is configured to permit one or more of said... ..said locations are residences of one or more of said students,

56 The system according to claim 54 wherein one or

35 more of said **materials** presents homework to one or more of said students,141 - The system according to claim 51 wherein said network is further configured to be a... ..being from a table of available personas and according to the preferences of said associated student,

61 The system according to claim 51 wherein said **materials** further comprise instructional **materials** executable on said computers for interactive instruction of said students, and tools executable on said computers for assistance of said students in said interactive instruction.62\* The system according to claim 61 wherein said instructional **materials** further comprise instructional **materials** appropriate to primary or secondary education,3S 63, The system according to claim 61 wherein said tools further comprise one or more tools selected from...to claim 67 where said forms of group instruction are selected from the group consisting35 of exchange of messages, group work on a shared **material**, and group participation in educational contests. 143 . The system according to claim 51 wherein one or more of said **materials** further comprises **materials** engine software and **materials** data, and wherein said **materials** engine process said **materials** data to present said5 interactive instruction,

70 The system according to claim 69 wherein each of said **materials** data further comprises:(a) a plurality of display objects for10 presentation;(b) sequencing logic for controlling the order of said presentation of said plurality... ..objects; and(c) notations for causing generation of said monitoring information.is

71 The system according to claim 51 wherein one or more of said **materials** comprises a program having data and instructions.

72 The system according to claim 51 further comprising pedagogic information data areas for each student, said pedagogic... according to claim 72 wherein said data in said pedagogic information data areas does not depend on the subject matter of said one or more **materials**.

74 The system according to claim 72 wherein said agent action processing updates said pedagogic information data areas associated with said agent's associated student... said monitoring information; whereby said associated agent adapts to said 15 student.

77 The system according to claim 51 wherein one or more of said **materials** presents said interactive instruction according to an education paradigm, and wherein said 20 monitoring information generated by said **materials** further comprises pedagogic information classified according to said education paradigm of said **materials**.

78 The system according to claim 77 further comprising 25 control parameters for each **material** that have an educational paradigm, wherein each **material** presents said interactive instruction according to values of said control parameters, and wherein said agent action processing assigns said values of said control parameters; whereby said agent action processing controls said **materials**,

79 The system according to claim 77 wherein said educational paradigm is selected from the group consisting of 35 interactive **tutorial**, fluency exercise, paired association exercise, discrimination formation exercise, and simulation exercise. 145, The system according to claim 77 wherein said educational paradigm is standardized according to... format.

81 The system according to claim 80 wherein said instructional context is selected from the group consisting of prerequisite test, prerequisite review, pretest, new **material** introduction, new **material** discrimination, new **material** review, fluency exercise practice, review practice, 10 and unit mastery test,

82 The system according to claim 80 wherein said instructional format is selected from... and wherein said agent action processing software further comprises software referencing said plurality of tables of rules in order to control said one or more **materials** and to generate said action(s).

86 The system according to claim 85 wherein said plurality of tables of rules comprises a policy filter table... The system according to claim 87 wherein said output modalities are one or more output modalities selected from the group consisting of text, graphics, speech, **audio**, 35 animation, video, and pre-formatted animated sequences. 147, The system according to claim 51 further comprising one or more student data objects, each of student; and (b) progress and performance information for describing the progress and performance of said student in said **materials**. is 101, The system according to claim 100 wherein said agent associated with each student further comprises agent software and said student data object associated... according to claim 51 wherein one or more of said computers are configured as server systems, wherein said server systems store said one or more **materials** and one or more agents, and wherein said one or more computers download said **materials** and said one or more agents from said one or more server systems across said computer network, 103, The system according to claim 102 further comprising databases of pedagogic information and **materials** progress and performance information for said one or more students, and wherein said databases

are stored on said server systems, 104, The system according to claim 103 further comprising reporting software for generating reports from 149 said databases of pedagogic information and **materials** progress and performance information for said one or more students. 105. The system according to claim 51 further comprising one or more system managers executable... according to claim 105 wherein said one or more display areas are selected from the group comprising an agent area for agent interactivity, a **materials** area for **materials** interactivity, and a system area in which said system manager displays selection icons for available system tools and facilities. 107. The system according to claim 106 wherein said one or more **materials** and said one or more agents provide facilities always available to said one or more students and said **materials** area and said agent area comprise sub-areas whose selection activates one of said always available 25 facilities, 108, The system according to claim 106... claim 51 wherein one or more teachers directs instruction of one or more of said students, said system further comprising: (a) one or more teacher **materials** executable on said one or more computers, each said teacher **material** for presenting interactive instruction to teachers in the use of said system and in the use of **materials** directed to said- 150 students and for generating monitoring information that monitors said interactive instruction; and (b) one or more teacher agents executable on said **materials** to instruct said associated teacher, 10 said controlling being responsive to said monitoring information that monitors said interactive instruction of said associated teacher, and (ii... more students, said system 20 comprising: (a) one or more computers having interactive input/output devices and interconnected by a network; (b) one or more **materials** executable on said one or more computers, each said **material** for presenting 25 interactive instruction to said one or more students and for generating monitoring information that monitors said interactive instruction; and (c) one or... 115, The system according to claim 110 further comprising action processing for generating at least one- 152 action and for controlling said one or more **materials** to instruct said associated student, said generating and said controlling being responsive to said monitoring information that monitors said interactive instruction of said associated 5 instruction 10 system for instruction of a plurality of students, said method comprising: (a) executing one or more **materials** on a computer for presenting interactive instruction to one student of said plurality of students, said computer being one computer of a 15 plurality of... interactive input/output devices; (b) generating monitoring information that monitors said interactive instruction presented to said 20 student; and (c) controlling said one or more **materials** to instruct said student, said controlling being responsive to said information monitoring the interactive instruction of said student; whereby said interactive instruction is individualized to... method according to claim 119 wherein said output modalities are one or more output modalities selected 10 from the group consisting of text, graphics, speech, **audio**, animation, video, and pre-formatted animated sequences 121. The method according to claim 117 wherein said step of outputting information further comprises (i) a step... said step of outputting information 25 is further responsive to said student requests, 123, The method according to claim 116 wherein said one or more **materials** is a plurality of **materials**. 124, The method according to claim 116 further comprising prior to said executing step a further step of accessing any one of said computers by... one student, said accessing comprising verifying the authority of said one student to access said system for interactive instruction by 35 said one or more **materials**.- 154, The method according to claim 124 wherein one

or more of said computers are located in a plurality of locations, and wherein the step one or more of said students, and wherein said one or more **materials** presents homework in said one or more residences.127. The method according to claim 116 wherein said step of controlling further comprises controlling according to a policy filter table, a decision weight table, and a selection criteria table, and wherein said controlling step controls said one or more **materials** according to one or more determined controlling actions, and wherein said controlling step uses said policy filter table for determining one or more candidate controlling... pattern recognition.130, The method according to claim 116 wherein the step of executing further comprises executing one or more of said one or more **materials** according to an educational paradigm,155 and wherein said monitoring information further comprises pedagogic information classified according to said educational paradigm adopted by said one or more **materials**.131, The method according to claim 130 wherein said educational paradigm is standardized according to an instructional context and an instructional format.132. The method... said updating being responsive to the information monitoring the interactive15 instruction of said student, and wherein the step of controlling said one or more **materials** to instruct said student is further responsive to said student model of said student; whereby said one or more **materials** are individualized to said student.133. The method according to claim 132 wherein said step of updating said one student model further comprises updating... describes pedagogic characteristics of said student of said plurality- 156 of students in a manner independent of the subject matters of said one or more **materials**.136, ...said progress and performance information describes the progress and performance of said student in said interactive instruction presented by each of said one or more **materials**,137, The method according to claim 116 wherein said one or more **materials** further comprises one or more instructional **materials** for presenting interactive instruction to said plurality of students, and one or more tools for presenting15 interactive assistance to said plurality of students during... information that monitors said scheduled activities of said student.139, The method according to claim 138 wherein the step of executing executes one or more **materials** that relate to30 said scheduled activities of said student,140\* The method according to claim 116 further comprising prior to said controlling step (i... operating an agent based instruction5 system for instruction of a plurality of students, said method comprising:(a) a step for executing one or more **materials** on a computer for presenting interactive instruction to each student, said computer being one computer of a plurality of computers interconnected by a network... information that monitors said interactive instruction presented to each student of said plurality of students; is (c) a step for controlling said one or more **materials** to instruct each student, said controlling being responsive to said information monitoring the interactive instruction of each student; and (d) a step of outputting information... instruction system for instruction of a plurality of students, said system comprising:(a) means for presenting interactive instruction to each student by one or more **materials**;(b) means for generating monitoring information that monitors said interactive instruction presented to each student;(c) means for controlling said one or more **materials** to ...virtual10 tutor individualized to each student.143. An agent based instruction system for instruction of a student, said system comprising:(a) one or more **materials** executable on a computer15 for presenting interactive instruction to said student, said computer having interactive input/output devices; and (b) an agent executable on said computer,

said agent (i) receiving monitoring information from each of said one or more **materials** that monitors said interactive<sup>20</sup> instruction of said student, (ii) controlling said one or more **materials** to instruct said student, said controlling being responsive to said monitoring information, and (iii) outputting information to guide said student, said outputting being responsive to... ..a plurality of instructional sessions, said system comprising: (a) means for presenting interactive instruction<sup>30</sup> to one of said students by executing one or more **materials** on a computer accessed by said student for a current instructional session; (b) means for monitoring said interactive instruction of said student during said current... ..over a plurality of instructional sessions, said system comprising: (a) means for presenting interactive instruction to one of said students by executing one or more **materials** on a computer accessed by said student for a current<sup>20</sup> instructional session; (b) means for monitoring said interactive instruction of said student during said...